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As filed with the Securities and Exchange Commission on September 18, 2017.

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

OPTINOSE, INC.
(Exact Name of Registrant as Specified in its Charter)

Delaware	**2834**	**42-1771610**
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

1020 Stony Hill Road, Suite 300
Yardley, Pennsylvania 19067
(267) 364-3500
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Peter K. Miller
Chief Executive Officer
OptiNose, Inc.
1020 Stony Hill Road, Suite 300
Yardley, Pennsylvania 19067
(267) 364-3500
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Steven J. Abrams **Rachael M. Bushey** **Hogan Lovells US LLP** **1735 Market Street, 23rd Floor** **Philadelphia, PA 19103** **(267) 675-4600**	**Michael F. Marino** **Chief Legal Officer** **OptiNose, Inc.** **1020 Stony Hill Road, Suite 300** **Yardley, PA 19067** **(267) 364-3500**	**Divakar Gupta** **Brian F. Leaf** **Jeffrey P. Libson** **Cooley LLP** **1114 Avenue of the Americas** **New York, NY 10036** **(212) 479-6000**

Approximate date of commencement of proposed sale to public:
As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, as amended (the "Securities Act"), check the following box. o

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer o	Accelerated filer o	Non-accelerated filer ☒ (Do not check if a smaller reporting company)	Smaller reporting company o Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☒

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered	Proposed maximum aggregate offering price[1]	Amount of registration fee[2]
Common Stock, $0.001 par value per share	$100,000,000.00	$11,590.00

(1) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act and includes the aggregate offering price of shares that the underwriters have an option to purchase.

(2) To be paid in connection with the initial public filing of the registration statement.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act or until the registration statement shall become effective on such date as the Commission acting pursuant to said Section 8(a), may determine.

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SUBJECT TO COMPLETION, DATED SEPTEMBER 18, 2017

PRELIMINARY PROSPECTUS

Shares

Common Stock

This is the initial public offering of common stock of OptiNose, Inc. We are offering shares of our common stock. We expect the initial public offering price to be between $ and $ per share.

Prior to this offering, there has been no public market for our common stock. We have applied to list our common stock on The NASDAQ Global Market under the trading symbol " ."

We are an "emerging growth company" as defined by the Jumpstart Our Business Startups Act of 2012 and, as such, we are subject to reduced public company reporting requirements for this prospectus and future filings. See "Implications of Being an Emerging Growth Company" on page 59 of this prospectus.

Investing in our common stock involves a high degree of risk. Please read "Risk Factors" beginning on page 13 of this prospectus.

	PER SHARE	TOTAL
Initial public offering price	$	$
Underwriting discounts and commissions	$	$
Proceeds to OptiNose, Inc., before expenses	$	$

(1) See "Underwriting" beginning on page 167 of this prospectus for information regarding compensation payable to the underwriters.

We have granted the underwriters an option for a period of 30 days to purchase up to an additional shares of common stock at the initial public offering price, less the underwriting discounts and commissions.

After the closing of this offering, we will be a "controlled company" under the corporate governance standards for NASDAQ listed companies and will be exempt from certain corporate governance requirements under the NASDAQ listing rules. See "Management — Director Independence and Controlled Company Exemptions" on page 128 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

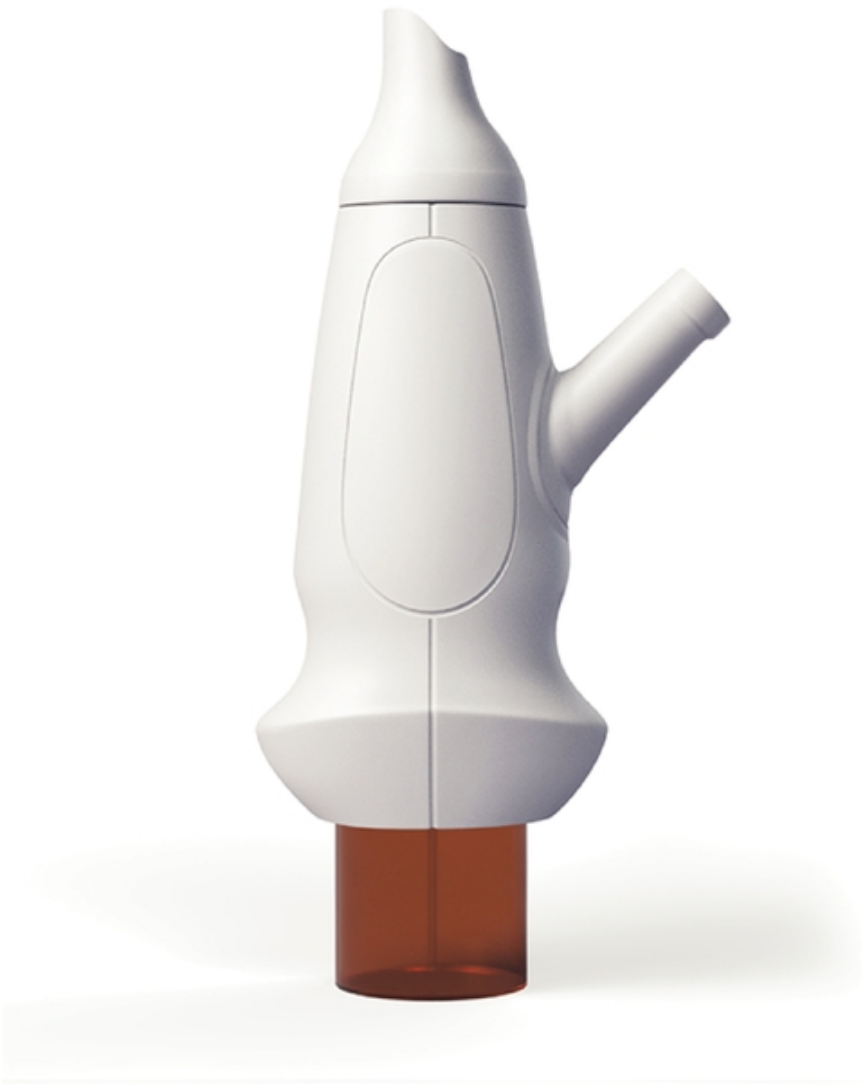
The underwriters expect to deliver the shares of common stock to investors on or about , 2017.

Jefferies **Piper Jaffray** **BMO Capital Markets** **RBC Capital Markets**

The date of this prospectus is , 2017.

XHANCE™

(fluticasone propionate) nasal spray 93 mcg



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Neither we nor any of the underwriters has authorized anyone to provide you with information different from, or in addition to, that contained in this prospectus or any free writing prospectus prepared by or on behalf of us or to which we may have referred you in connection with this offering. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The information in this prospectus is accurate only as of its date, regardless of the time of delivery of this prospectus or of any sale of shares of our common stock. Our business, financial condition, results of operations and future growth prospects may have changed since that date.

Through and including , 2017 (25 days after the date of this prospectus), all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This delivery requirement is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to their unsold allotments or subscriptions.

TRADEMARKS

OPTINOSE®, XHANCE™ and Breath Powered® are trademarks or registered trademarks of ours in the United States. This prospectus contains references to our trademarks and to trademarks belonging to other entities. Solely for convenience, trademarks and trade names referred to in this prospectus, including logos, artwork and other visual displays, may appear without the ® or ™ symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights to these trademarks and trade names. All other trademarks, trade names and service marks appearing in this prospectus are the property of their respective owners. We do not intend our use or display of other companies' trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

INVESTORS OUTSIDE THE UNITED STATES

For investors outside of the United States: neither we nor any of the underwriters have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. You are required to inform yourselves about and to observe any restrictions relating to this offering and the distribution of this prospectus.

PROSPECTUS SUMMARY

This summary highlights information contained in greater detail elsewhere in this prospectus. This summary does not contain all of the information that you should consider in making your investment decision. Before investing in our common stock, you should carefully read this entire prospectus, including our consolidated financial statements and the related notes thereto and the information set forth under the sections titled "Risk Factors," "Special Note Regarding Forward-Looking Statements" and "Management's Discussion and Analysis of Financial Condition and Results of Operations," in each case included in this prospectus.

Unless the context otherwise requires, we use the terms "Optinose," "Company," "we," "us," "our" and similar designations in this prospectus to refer to OptiNose, Inc. and, where appropriate, our subsidiaries.

Optinose

We are a specialty pharmaceutical company focused on the development and commercialization of products for patients treated by ear, nose and throat, or ENT, and allergy specialists. Our lead product, XHANCE, is a therapeutic utilizing our proprietary Breath Powered exhalation delivery system, or EDS, that delivers a topically-acting and potent anti-inflammatory corticosteroid for the treatment of chronic rhinosinusitis with and without nasal polyps. Chronic rhinosinusitis is a serious nasal inflammatory disease that is currently treated using therapies, such as intranasal steroids, or INS, that have significant limitations. We believe XHANCE has a differentiated clinical profile with the potential to become part of the standard of care for this disease because it is able to deliver medication to the primary site of inflammation high and deep in the nasal passages in regions not adequately reached by current INS. We also believe that payors will respond favorably to XHANCE's clinical, cost and quality-of-care profile, as compared to current and potential future costly drug therapy and surgical treatment options.

On September 18, 2017, the U.S. Food and Drug Administration, or FDA, approved our new drug application, or NDA, for XHANCE for the treatment of nasal polyps in adults. We expect to launch XHANCE in the second quarter of 2018 with a dedicated sales force targeting a specialty prescriber base comprised of approximately 15,000 physicians in the United States. We expect our sales force will initially consist of approximately 75 representatives. We plan to initiate additional clinical trials of XHANCE in the second half of 2018 to seek a follow-on indication for the treatment of chronic sinusitis to broaden our market opportunity.

We have conducted five clinical trials evaluating over 1,500 adult patients, including two randomized, double-blinded, placebo-controlled Phase 3 pivotal clinical trials in adults with nasal polyps and two supportive open-label Phase 3 clinical trials in adults with symptoms of chronic sinusitis with and without nasal polyps. In both Phase 3 pivotal clinical trials, patients treated with XHANCE experienced statistically significant reductions of both nasal congestion/obstruction symptoms and total polyp grade, which were the co-primary endpoints. Treatment benefits were also observed in all four defining symptoms of chronic rhinosinusitis, as well as in polyp elimination, quality of life, need for sinus surgery and patient global impression of change. In addition, the magnitude of improvement for patients treated by XHANCE in our Phase 3 pivotal clinical trials, as measured by the Sinonasal Outcome Test-22, a validated clinical outcome assessment, was comparable to the reported benefits in third-party studies of endoscopic sinus surgery, or ESS, and balloon sinus dilation. In addition, XHANCE had an adverse event profile generally comparable to the profile reported in similarly designed studies with conventional INS. In our supportive open-label Phase 3 clinical trials, which evaluated approximately 900 patients with symptoms of chronic sinusitis with and without nasal polyps for a period of up to one year, XHANCE was generally well tolerated and produced results on efficacy endpoints similar to those observed in our Phase 3 pivotal clinical trials. In these supportive trials, we observed comparable symptom improvements in patients with and without nasal polyps and continuing incremental polyp reduction and symptom improvement through 12 months.

We intend to efficiently launch XHANCE into the ENT and allergy market segments. Initially, we will focus our marketing efforts on moderate-to-severely symptomatic patients who have not achieved satisfactory results with currently available INS. We plan to educate physicians, payors and patients on XHANCE's unique mechanism of action and differentiated efficacy profile. We also intend to establish a meaningful value proposition for these key stakeholders by highlighting the potential for XHANCE to reduce or delay the need for surgical intervention, reduce antibiotic prescribing and increase patient satisfaction with treatment outcomes. We are also engaging payors to secure broad market access for XHANCE in the commercial segment by targeting Tier 3 payor coverage, single step edit with no prior authorization. This level of coverage indicates that payors would require patients to use a generic INS as a first step in treating their disease prior to the payor covering XHANCE. However, such coverage would not require the prior authorization of the payor. Tier 3 payor coverage requires a patient co-pay that is higher than that required for generics or drugs within a payor's formulary.

Our Market Opportunity

The Unmet Need

Chronic rhinosinusitis is a serious nasal inflammatory disease characterized by chronic inflammation affecting tissues high and deep in the nasal passages, including the area where the openings from the sinuses normally ventilate and drain. This disease significantly impacts the quality of life and daily functioning of an estimated 30 million adults in the United States. The U.S. healthcare system spends approximately $60 billion annually in direct costs treating patients with chronic rhinosinusitis and its associated symptoms, including an estimated $5 billion on sinus surgeries. In the United States, physicians perform over 500,000 sinus surgeries each year, and we estimate that over seven million adults have undergone sinus surgery to treat chronic rhinosinusitis with and without nasal polyps.

In medical literature and practice, chronic rhinosinusitis is commonly divided into two subgroups: chronic rhinosinusitis with nasal polyps and chronic rhinosinusitis without nasal polyps. Chronic rhinosinusitis patients with and without nasal polyps suffer from chronic inflammation of the lining of the deep nasal passages and sinuses. Patients with chronic rhinosinusitis with nasal polyps also develop non-cancerous polyps on these chronically inflamed surfaces, typically originating in the deep crevices or sinus cavities on both sides of the nose. We estimate that up to 10 million adults in the United States have chronic rhinosinusitis with nasal polyps.

Both subgroups of chronic rhinosinusitis also share the same four defining diagnostic symptoms: nasal congestion/obstruction; facial pain and pressure; rhinorrhea, or runny nose, and postnasal drip; and loss of sense of smell and taste. Additional symptoms include headaches, chronic sleep problems, fatigue, frequent episodes of acute rhinosinusitis and mood disorders. There is evidence suggesting that the harm to a sufferer's quality of life from chronic rhinosinusitis, as measured in multiple domains, such as bodily pain, social functioning and mental health, is comparable to or worse than other serious diseases, including chronic obstructive pulmonary disease, congestive heart failure and angina. As a result, many patients eventually seek surgery for symptom relief.

Although the term chronic rhinosinusitis is often used in medical literature and medical practice, the FDA does not recognize chronic rhinosinusitis as a single indication for drug development purposes. Instead, the FDA recognizes chronic sinusitis, defined as inflammation of the sinuses with a duration longer than eight weeks, and nasal polyps, defined as non-cancerous polyps on the inflamed tissue of the nasal passages and sinuses, as separate indications for drug development purposes. For purposes of this prospectus, we use the terms chronic sinusitis and nasal polyps when referring to FDA treatment indications and our clinical trials, and use the term chronic rhinosinusitis with and without nasal polyps when referring to disease and economic data reported in the medical literature, medical practice and our estimates of XHANCE's market opportunity.

Our U.S. Market Opportunity

Our initial target market for XHANCE will consist of ENT physicians, allergists and primary care physicians in the United States that most frequently prescribe INS. This group of approximately 5,000 primary care physicians, which we refer to as high-decile INS-prescribing primary care physicians, account for approximately 25% of all INS prescriptions written by primary care physicians. We refer to these ENT physicians, allergists and high-decile INS-prescribing primary care physicians collectively as the specialty segment of our target market. We believe the approximately 15,000 physicians in this specialty segment together treat an estimated 3.5 million U.S. patients with chronic rhinosinusitis, an estimated 1.2 million of whom have chronic rhinosinusitis with nasal polyps. We believe the total annual U.S. market opportunity for XHANCE in this specialty segment is over $3.4 billion, of which approximately one-third consists of patients with chronic rhinosinusitis with nasal polyps. If we are able to obtain approval for the follow-on indication of chronic sinusitis, we intend to broaden our commercialization efforts to target additional primary care physicians that we believe treat an additional estimated 6.25 million U.S. patients with chronic rhinosinusitis, an estimated one-third of whom have chronic rhinosinusitis with nasal polyps. We refer to these additional primary care physicians as the primary care segment of our target market. We believe the total additional annual U.S. market opportunity for XHANCE in this primary care segment is over $6.0 billion, of which approximately one-third consists of patients with chronic rhinosinusitis with nasal polyps. Therefore, we estimate the total annual U.S. market opportunity for the combined specialty and primary care segments is over $9.5 billion, of which approximately one-third consists of patients with chronic rhinosinusitis with nasal polyps.

Landscape of Treatment Therapies for Chronic Rhinosinusitis and Their Limitations

The treatment of chronic rhinosinusitis with and without nasal polyps typically begins with medical management. In cases where patients remain symptomatic despite medical management, physicians often recommend various forms of sinus surgery to help restore normal sinus ventilation and drainage. The following is a brief description of the current and potential future treatment landscape for chronic rhinosinusitis with and without nasal polyps and their limitations:

Current Therapies

- ***Intranasal Steroids.*** Multiple published clinical practice guidelines recommend topically-acting INS as the first line of prescription therapy for the treatment of chronic rhinosinusitis with and without polyps. As a result, physicians typically prescribe INS sprays or aerosols despite the fact that there are no FDA-approved products for the treatment of chronic sinusitis without nasal polyps. Physicians also prescribe INS following sinus surgery to improve symptoms and delay recurrence. Conventional INS are unable to effectively and consistently place the steroids onto the primary site of inflammation and nasal polyp origin, high and deep in the nasal passages, reducing their effectiveness and leaving many patients without sufficient symptomatic relief.

- ***Oral Steroids.*** Physicians may prescribe oral steroids on an episodic basis to patients who have not received sufficient symptomatic relief from INS. Oral steroids are often effective at treating the underlying inflammation associated with the disease and reducing postoperative scarring. However, oral steroids offer only temporary benefit and are limited by the risk of serious systemic side effects associated with both short- and long-term use. As inflammation returns, many patients resume INS therapy.

- ***Other Medical Management.*** Physicians commonly employ a variety of other non-surgical treatments in the medical management of chronic rhinosinusitis, including nasal saline rinses, multi-week courses of antibiotics, leukotriene antagonists, decongestants, aspirin desensitization and antifungals. The recognized limitations of drug deposition with current INS cause some physicians to seek out alternative treatment regimens such as high-volume steroid nasal rinses. These treatments have varying degrees of supporting data and efficacy. In addition, high-volume steroid nasal rinses are difficult to administer, can be costly and may risk systemic side effects.

- ***Sinus surgery and other procedures.*** Physicians generally recommend surgical treatment of chronic rhinosinusitis with and without nasal polyps only after patients fail medical management. The primary

surgical alternative is ESS, which attempts to open the sinus drainage pathways while preserving as much bone and sinus tissue lining as possible. Other surgical alternatives include balloon sinus dilation devices and steroid-releasing sinus implants. The effectiveness of sinus surgery varies significantly and many patients experience persistent or recurrent symptoms and surgery does not address the underlying cause of inflammation. Balloon sinus dilation is costly and also does not address the underlying cause of inflammation. Steroid-releasing sinus implants have limited duration of anti-inflammatory effect, are costly and face reimbursement challenges.

Potential Future Therapies

- ***Biologic monoclonal antibodies.*** Several biologic monoclonal antibodies, some of which are already approved for other indications, are being developed for nasal polyps and are believed to inhibit specific pathways of inflammation present in nasal polyps. However, the risks and benefits associated with the use of these drugs for the treatment of nasal polyps are not yet fully established and we expect them to be costly. These drugs also require subcutaneous injections or intravenous administration that require frequent physician office visits.

Market Need for a New Therapy

Given the limitations of current and potential future therapies for chronic rhinosinusitis, we believe there is a significant opportunity for a new treatment that prevents progression to more costly or risky treatment alternatives.

Our Solution

XHANCE combines our EDS with a liquid formulation of fluticasone propionate, a second-generation anti-inflammatory corticosteroid. XHANCE is designed to deliver this drug into the high and deep regions of the nasal passages where both nasal polyps and inflamed and swollen membranes can obstruct normal sinus ventilation and drainage. We believe XHANCE has the potential to become part of the standard of care for the treatment of patients with chronic rhinosinusitis before they progress to more costly treatment alternatives and could also be adopted as a maintenance therapy to improve outcomes following sinus surgery. We believe the following factors could contribute to the potential success of XHANCE:

- ***High patient dissatisfaction with current INS.*** In a market research study that we commissioned, we surveyed 438 patients with chronic sinusitis with and without nasal polyps. In this study, approximately 80% of the patients reported being frustrated with the symptom relief offered from their current INS medication and approximately 90% of the patients reported they would be interested in using a new product if it would improve symptom relief.

- ***Strong physician interest in XHANCE product profile.*** We surveyed approximately 700 physicians, consisting of 400 ENT and allergy specialists and 300 primary care physicians that currently treat patients with chronic sinusitis with and without nasal polyps. Approximately 75% of these physicians, including both specialists and primary care physicians, agreed, in part, that INS medications do not work well in patients with chronic sinusitis due to their belief that conventional INS do not sufficiently reach the high and deep regions of the nasal passages where inflammation occurs. In addition, 70% to 80% of these physicians reported that they would "definitely" or "probably" prescribe their patients a product with a clinical profile similar to XHANCE.

- ***Fluticasone propionate is the most widely-prescribed INS.*** XHANCE contains fluticasone propionate, a potent and well-characterized anti-inflammatory corticosteroid with a low bioavailability, meaning only a small percentage of the drug is absorbed into the body. Corticosteroids provide multiple anti-inflammatory mechanisms of action and are used in various forms to treat many sites of inflammation.

- ***XHANCE was designed to overcome the limitations of current INS therapies.*** In multiple studies utilizing advanced imaging, our EDS produced a differentiated pattern of drug delivery with significantly more drug deposited at the primary site of inflammation high and deep in the nasal passages where nasal polyps or inflamed and swollen membranes produce nasal symptoms and can obstruct normal sinus ventilation and drainage.

- ***Strong clinical data demonstrating safety and efficacy.*** In two randomized, double-blinded, placebo-controlled Phase 3 pivotal clinical trials evaluating adult patients with nasal polyps, we met our co-primary endpoints of statistically significant reductions of nasal congestion/obstruction symptoms and total polyp grade and XHANCE also produced treatment benefits as measured by multiple secondary endpoints. In two supportive open-label Phase 3 clinical trials evaluating approximately 900 patients with symptoms of chronic sinusitis with and without nasal polyps for a period of up to one year, XHANCE was generally well tolerated. In these supportive trials, we observed comparable symptom improvements in patients with and without nasal polyps, and continuing incremental polyp reduction and symptom improvement through 12 months.

- ***XHANCE is easy to use.*** In a market study that we commissioned, 98% of patients reported that XHANCE was easy to use after four weeks of use and 93% stated the ease of use was comparable to other INS.

- ***Potential for broad payor access.*** In a market research study that we commissioned, we surveyed 26 health insurance plans representing over 150 million covered lives. Most payors reacted positively to a profile of XHANCE. A majority of payors surveyed indicated that they do not intend to actively manage INS products priced below a certain dollar threshold and many surveyed payors indicated that they would provide access without prior authorization to INS products priced within a certain dollar range. In addition to this market research study, we obtained formulary data for INS from various sources representing approximately 159 million covered lives. These data indicate that health insurance plans covering 84% of commercial lives do not require prior authorization in the INS category for contracted products.

- ***Cost-effective solution.*** We intend to price XHANCE comparably to branded INS that are currently approved to treat nasal polyps. We believe XHANCE will offer a cost-effective clinical benefit to payors that will reduce the perceived need for multiple step-edits and prior authorizations, which we believe will increase the likelihood of successful commercial adoption of XHANCE.

Our Growth Strategy

Our goal is to become a leading specialty pharmaceutical company dedicated to developing proprietary products that become a part of the standard of care for diseases in the ENT and allergy segments. The key elements of our strategy are to:

- ***Commercialize XHANCE in the ENT and allergy specialty markets in the United States.*** We have begun building our commercial leadership team and organization. Initially, we intend to engage a dedicated specialty sales force to promote XHANCE to a defined prescriber base consisting of approximately 10,000 ENT and allergy specialists, as well as approximately 5,000 high-decile INS-prescribing primary care physicians.

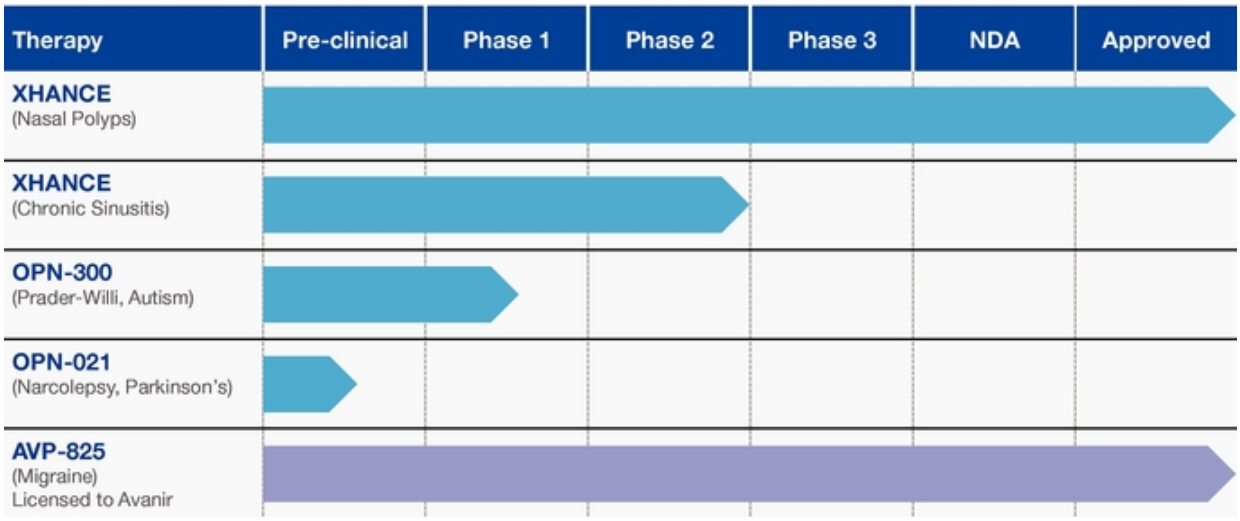
- ***Pursue development of XHANCE for the treatment of chronic sinusitis to broaden our market opportunity.*** We plan to seek a follow-on indication for XHANCE for the treatment of chronic sinusitis. We believe XHANCE would be the first drug therapy product approved for the treatment of chronic sinusitis. Upon approval, we plan to broaden our marketing to additional primary care physicians. If we obtain approval for this indication, we may also direct promotional resources to an additional estimated 20 million adults who are not regularly under the care of physicians for this disease using programs such as direct-to-consumer and direct-to-patient promotion.

- ***Develop a pipeline of additional products focused on the ENT and allergy specialty markets.*** We are evaluating the use of our EDS to deliver other drugs or drug combinations to treat diseases primarily managed by ENT and allergy specialists. We also intend to explore complementary technologies or products to make effective use of our commercial infrastructure.

- ***Explore business development activities for our EDS outside of the ENT and allergy markets.*** We are exploring the possibility of using our EDS to support nose-to-brain drug delivery and are in the early stages of clinical development of OPN-300, which combines our EDS with oxytocin for the treatment of Prader-Willi syndrome and autism spectrum disorder. We are in preclinical development of OPN-021, which combines our EDS with orexin-A for the treatment of narcolepsy or symptoms of other diseases potentially amenable to the same pharmacologic activity, such as Parkinson's disease.

- ***Expand XHANCE into international markets.*** We have begun an initial assessment of the development and commercialization of XHANCE for markets outside the United States and plan to conduct further strategic evaluation of such markets now that XHANCE has been approved in the United States. We also intend to explore strategic collaboration opportunities in Europe and the rest of the world in order to maximize the commercial potential and the availability of XHANCE to patients.

Our Pipeline



Intellectual Property and Barriers to Entry

XHANCE benefits from substantial intellectual property and other technical barriers to entry, including regulatory and drug delivery complexities. Our patent portfolio for XHANCE consists of nine issued U.S. patents expiring through 2030 and 12 U.S. patent applications that, if granted, would expire through 2034. We believe the unique features of our EDS, as well as its delivery of a topically-acting drug, will present generic and 505(b)(2) NDA competitors of XHANCE with human factors engineering challenges specific to drug-device combination products and chemistry, manufacturing and controls challenges unique to suspension and respiratory products. We also believe that any future substitutable generic competitors would be required to conduct, among other things, non-inferiority clinical trials demonstrating equivalent efficacy and safety outcomes to establish clinical bioequivalence to XHANCE. We believe these clinical trials would require a significant amount of time and capital investment and present clinical development uncertainties.

Risks Associated with our Business

Our ability to implement our business strategy is subject to numerous risks and uncertainties. You should carefully consider all of the information set forth in this prospectus and, in particular, the information under the heading "Risk Factors," beginning on page 13 of this prospectus, prior to making an investment in our common stock. These risks include, among others, the following:

- we may not be able to successfully commercialize XHANCE;
- the market opportunities for XHANCE may be smaller than we believe;
- third-party payors may not provide sufficient coverage or adequate reimbursement for XHANCE;
- we currently have limited sales and marketing capabilities and, if we are unable to enter into a suitable agreement with a contract sales organization, we may not be successful in commercializing XHANCE; and
- we depend on third-party suppliers, manufacturers, wholesalers and distributors in order to commercialize XHANCE, and these third parties may fail to devote sufficient time and resources to the commercialization of XHANCE.

Corporate Information

We were incorporated in Delaware in May 2010. Our predecessor entity OptiNose AS was formed under the laws of Norway in September 2000. In 2010, OptiNose AS became our subsidiary as part of an internal reorganization.

Our primary executive offices are located at 1020 Stony Hill Road, Suite 300, Yardley, Pennsylvania 19067 and our telephone number is (267) 364-3500. Our website address is www.optinose.com. The information contained in, or that can be accessed through, our website is not part of this prospectus and should not be considered as part of this prospectus or in deciding whether to purchase our common stock.

Our Principal Stockholder

Funds affiliated with Avista Capital Partners, or Avista, are expected to own approximately % of our outstanding common stock upon the closing of this offering.

Avista is a leading New York-based private equity firm with approximately $5 billion under management. Founded in 2005, Avista makes controlling or influential minority investments in growth-oriented healthcare businesses. Through its team of seasoned investment professionals and industry experts, Avista seeks to partner with strong management teams to invest in and add value to well-positioned businesses.

THE OFFERING

Issuer	OptiNose, Inc.
Common stock offered by us	shares (shares if the underwriters exercise their option to purchase additional shares in full).
Common stock to be outstanding immediately after this offering	shares (shares if the underwriters exercise their option to purchase additional shares in full).
Option to purchase additional shares	We have granted to the underwriters the option, exercisable for 30 days from the date of this prospectus, to purchase up to additional shares of common stock.
Use of proceeds	We estimate that the net proceeds to us from this offering, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, will be approximately $ million, based on an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus. We currently estimate that we will use the net proceeds from this offering, together with our existing cash and cash equivalents, for the following purposes: § approximately $ million to support the planned launch of XHANCE, including investment to establish and continue to build our commercial infrastructure, supply chain, marketing and sales functions;

	§ approximately $ million to fund research and development efforts for XHANCE, including the initiation of FDA-mandated pediatric studies and the clinical trials necessary to seek approval for a follow-on indication of XHANCE for the treatment of chronic sinusitis; and § the remainder, if any, to fund working capital, research and development efforts and general corporate purposes, which may include the acquisition or licensing of products, product candidates, technologies, compounds, other assets or complementary businesses. See "Use of Proceeds" on page 60 of this prospectus for a more complete description.
Risk factors	You should read the "Risk Factors" section beginning on page 13 of this prospectus for a discussion of certain of the factors to consider carefully before deciding to purchase any shares of our common stock.
Proposed NASDAQ Global Market Symbol	" "
Controlling stockholders	Upon the closing of this offering, entities affiliated with Avista and TKWD Ventures LLC as a group will collectively beneficially own a controlling interest in us. We currently intend to avail ourselves of the controlled company exemptions under the NASDAQ listing rules, and so you will not have the same protections afforded to stockholders of companies that do not rely on those

exemptions. See "Management — Director Independence and Controlled Company Exemptions" on page 128 of this prospectus.

Unless otherwise indicated, the number of shares of our common stock to be outstanding after this offering is based on 10,089,106 shares of common stock outstanding as of June 30, 2017, after giving effect to the conversion of shares of our convertible preferred stock outstanding as of June 30, 2017 into an aggregate of 8,680,566 shares of our common stock effective upon the closing of this offering, and excludes:

- 1,522,901 shares of common stock issuable upon the exercise of stock options outstanding as of June 30, 2017 at a weighted-average exercise price of $18.64 per share;
- 654,624 shares of common stock issuable upon the exercise of warrants to purchase common stock outstanding as of June 30, 2017 at an exercise price of $23.56 per share;
- shares of common stock reserved for future issuance under our Amended and Restated 2010 Stock Incentive Plan, effective as of the effective date of the registration statement of which this prospectus is a part; and

- shares of common stock reserved for future issuance under our 2017 Employee Stock Purchase Plan, effective as of the effective date of the registration statement of which this prospectus is a part.

Unless otherwise indicated, all information in this prospectus assumes or gives effect to:

- a for stock split of our common stock effected on , 2017;
- no exercise by the underwriters of their option to purchase up to an additional shares of our common stock in this offering; and
- the automatic conversion of all of our convertible preferred stock outstanding upon the closing of this offering into an aggregate of 8,680,566 shares of our common stock.

SUMMARY CONSOLIDATED FINANCIAL DATA

The following consolidated summary financial data should be read together with our consolidated financial statements and the related notes, "Selected Consolidated Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing elsewhere in this prospectus. The summary consolidated financial data in this section is not intended to replace our consolidated financial statements and the related notes. We derived the summary consolidated statement of operations data for the years ended December 31, 2015 and 2016 from our audited consolidated financial statements and the related notes appearing elsewhere in this prospectus. We derived the summary consolidated statement of operations data for the six months ended June 30, 2016 and 2017 and the summary consolidated balance sheet data as of June 30, 2017 from our unaudited interim consolidated financial statements and the related notes appearing elsewhere in this prospectus. The unaudited interim consolidated financial data, in management's opinion, have been prepared on the same basis as the audited consolidated financial statements and the related notes included elsewhere in this prospectus, and include all adjustments, consisting only of normal recurring adjustments, that management considers necessary for a fair presentation of the information for the periods presented. Our historical results are not necessarily indicative of the results that may be expected in the future, and results from our interim period may not necessarily be indicative of the results of the entire year or any future period.

(in thousands, except share and per share data)	Years Ended December 31, 2015	Years Ended December 31, 2016	Six Months Ended June 30, 2016	Six Months Ended June 30, 2017
Consolidated Statement of Operations Data:				
Licensing revenues	$ 85	$ 47,500	$ 47,500	$ —
Operating expenses:				
Research and development	22,156	15,311	8,373	8,979
Selling, general and administrative	6,006	6,869	3,296	6,661
Total operating expenses	28,162	22,180	11,669	15,640
(Loss) income from operations	(28,077)	25,320	35,831	(15,640)
Other expense, net	237	2,707	1,524	643
Net (loss) income	(28,314)	22,613	34,307	(16,283)
Accretion of redeemable convertible preferred stock	(12,061)	(13,114)	(6,557)	(8,224)
Net (loss) income attributable to common stockholders	$ (40,375)	$ 9,499	$ 27,750	$ (24,507)
Net (loss) income per share of common stock,				
basic	$ (28.79)	$ 1.15	$ 3.35	$ (17.40)
diluted	$ (28.79)	$ 0.94	$ 2.74	$ (17.40)
Weighted average common shares outstanding,				
basic	1,402,290	1,403,900	1,402,290	1,408,540
diluted	1,402,290	1,724,513	1,717,460	1,408,540
Pro forma net income (loss) per share of common stock[(2)],				
basic (unaudited)		$ 2.73		$ (1.76)
diluted (unaudited)		$ 2.63		$ (1.76)
Pro forma weighted average common shares outstanding,				
basic (unaudited)		8,279,414		9,251,267
diluted (unaudited)		8,600,027		9,251,267

(in thousands)	As of June 30, 2017 Actual	Pro Forma[2]	Pro Forma As Adjusted[3] [4]
Consolidated Balance Sheet Data:			
Cash and cash equivalents	$ 58,887	$ 58,887	
Working capital[1]	54,689	54,689	
Total assets	63,962	63,962	
Redeemable convertible preferred stock	232,418	—	
Additional paid-in capital	—	232,409	
Accumulated deficit	(174,577)	(174,577)	
Total stockholders' (deficit) equity	(174,681)	57,737	

(1) Working capital is calculated as current assets minus current liabilities.

(2) Gives effect to the conversion of all our outstanding shares of convertible preferred stock into an aggregate of 8,680,566 shares of our common stock, which will occur upon the closing of this offering.

(3) Reflects the pro forma adjustment described in footnote (2) and the sale by us of shares of our common stock in this offering at an assumed initial offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

(4) Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) the pro forma as adjusted amount of each of cash and cash equivalents, working capital, total assets and total stockholders' (deficit) equity by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting the estimated underwriting discounts and commissions. We may also increase or decrease the number of shares we are offering. Similarly, each increase (decrease) of 1.0 million in the number of shares offered by us would increase (decrease) the pro forma as adjusted amount of each of cash and cash equivalents, working capital, total assets and total stockholders' (deficit) equity by $ million, assuming that the assumed initial public offering price remains the same, and after deducting the estimated underwriting discounts and commissions. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing.

RISK FACTORS

Investing in our common stock involves a high degree of risk. Before deciding to invest in our common stock, you should consider carefully the risks and uncertainties described below, together with general economic and business risks and all of the other information contained in this prospectus, including our consolidated financial statements and the related notes and the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations." If any of the following risks actually occur, our business, financial condition, results of operations and prospects could be harmed. In that event, the price of our common stock could decline and you could lose all or part of your investment. This prospectus also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of specific factors, including the risks described below. See "Special Note Regarding Forward-Looking Statements."

Risks Related to Our Financial Position and Capital Resources

We have incurred significant losses since our inception and anticipate that we will incur continued losses in the future.

We are a specialty pharmaceutical company with a limited operating history. To date, we have focused primarily on developing XHANCE as well as other product candidates using our proprietary Breath Powered exhalation delivery system, or EDS, technology. Since inception, we have incurred significant net losses and expect to continue to incur net losses for the foreseeable future. To date, we have generated revenue primarily from our license agreement, or the AVP-825 License Agreement, with Avanir Pharmaceuticals, Inc., or Avanir, pursuant to which we granted them the exclusive right to further develop and commercialize AVP-825 for the acute treatment of migraines in adults. We had net income of $22.6 million for the year ended December 31, 2016 and $34.3 million for the six months ended June 30, 2016 due primarily to the achievement of a development milestone under the AVP-825 License Agreement. However, we incurred net losses of $28.3 million for year ended December 31, 2015 and $16.3 million for the six months ended June 30, 2017. We incurred net losses in all other prior periods. As of June 30, 2017, we had an accumulated deficit of $174.6 million.

We expect to incur losses for the foreseeable future, and we expect these losses to increase as we:

- establish a commercialization infrastructure and scale up external manufacturing and distribution capabilities to commercialize XHANCE or any other product candidate for which we may obtain regulatory approval;
- adapt our regulatory compliance efforts to incorporate requirements applicable to marketed drugs;
- continue clinical development activities for XHANCE, including the U.S. Food and Drug Administration, or FDA, mandated pediatric studies, and seek regulatory approval for XHANCE for a follow-on indication for the treatment of chronic sinusitis;
- seek to discover and develop, in-license or acquire additional products, product candidates and technology;
- maintain, expand and protect our intellectual property portfolio;
- hire additional clinical, manufacturing and scientific personnel;
- add operational, financial and management information systems and personnel, including personnel to support commercialization efforts; and
- incur additional legal, accounting and other expenses in operating as a public company.

Because of the numerous risks and uncertainties associated with drug development and commercialization, we are unable to accurately predict the timing or amount of expenses or when, or if, we will be able to achieve profitability. If we are required by regulatory authorities to perform studies in addition to those expected, or if there are any delays in the initiation and completion of our clinical trials or the development of any of our product candidates, our expenses could increase.

We may never achieve or maintain profitability.

Our ability to become and remain profitable will depend on our ability to generate revenue. Although we may be entitled to future milestone payments and royalties under the AVP-825 License Agreement, to date we have not commercialized any of our other product candidates and will therefore depend upon our ability to successfully commercialize XHANCE and any of our other product candidates or any other product candidates that we may in-license or acquire in the future. We do not know when XHANCE or any of our other product candidates, if approved, will generate revenue for us, if at all. Our ability to generate revenue from our current or future products and product candidates will depend on a number of factors, including:

- our ability to successfully commercialize XHANCE for the treatment of nasal polyps;
- our ability to complete and submit a supplemental new drug application to the FDA and obtain regulatory approval for XHANCE for the treatment of chronic sinusitis;
- our ability to complete and submit applications to, and obtain regulatory approval from, foreign regulatory authorities, if we choose to commercialize XHANCE outside the United States;
- the size of the markets in the territories for which we gain regulatory approval;
- our ability to find a suitable contract sales organization to help us market and promote XHANCE;
- our ability to develop a commercial organization capable of sales, marketing and distribution for XHANCE and any of our other product candidates for which we may obtain marketing approval;
- our ability to maintain commercially reasonable agreements with wholesalers, distributors and other third-parties in our supply chain;
- our success in establishing a commercially viable price for our products;
- our success in defending against potential generic competition and other developments in our market generally;
- our ability to manufacture commercial quantities of our products at acceptable cost levels;
- our ability to obtain coverage and adequate reimbursement from third-parties, including government payors; and
- our ability to successfully complete development activities, including the necessary clinical trials, with respect to our other product candidates.

XHANCE, as well as any of our other product candidates, if approved for commercial sale, may not gain market acceptance or achieve commercial success. If our addressable market is not as significant as we estimate or the treatment population is narrowed by competition, physician choice or clinical practice guidelines, we may not generate significant revenue from sales of XHANCE. In addition, we would anticipate incurring significant costs associated with commercializing any approved product. We may not achieve profitability soon after generating product sales, if ever. If we are unable to generate product revenues, we will not become profitable and may be unable to continue operations without continued funding.

Even if we achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would depress the value of our company and could impair our ability to raise capital, expand our business, maintain our development efforts, obtain drug approvals, diversify our offerings or continue our operations. A decline in the value of our company could also cause you to lose all or part of your investment.

We will likely require additional capital to fund our operations and, if we fail to obtain necessary financing, we may be unable to complete the commercialization of XHANCE and the development of our other product candidates.

Our operations have consumed substantial amounts of cash. To date, we have financed our operations primarily through the sale and issuance of preferred stock and licensing revenues under the AVP-825 License Agreement and research grants. We expect to continue to spend substantial amounts to commercialize XHANCE and to advance the clinical development of XHANCE for the treatment of chronic sinusitis and our other product candidates. As of June 30, 2017, we had cash and cash equivalents of

$58.9 million. We believe the net proceeds from this offering, together with existing cash and cash equivalents, will be sufficient to fund our operations until . During this period, we expect to launch XHANCE in the United States, continue our clinical development plans to seek approval for XHANCE for the treatment of chronic sinusitis and continue our early-stage development efforts with respect to our other product candidates. Our estimate of the period of time through which our financial resources will be adequate to support our operations is based on assumptions that may prove to be wrong, and we could deplete our available capital resources sooner than we currently expect.

Our future funding requirements, both near and long-term, will depend on many factors, including, but not limited to:

- the success of our commercialization of XHANCE for the treatment of nasal polyps;
- the cost and timing of completion of commercial-scale outsourced manufacturing activities;
- our clinical development plans for XHANCE, including FDA-mandated pediatric studies and clinical trials for the follow-on indication for the treatment of chronic sinusitis;
- the outcome, timing and cost of the regulatory approval process of XHANCE for chronic sinusitis by the FDA, including the potential for the FDA to require that we perform more studies and clinical trials than those that we currently expect;
- the cost of filing, prosecuting, defending and enforcing our patent claims and other intellectual property rights;
- the cost of defending intellectual property disputes, including patent infringement actions brought by third parties against us;
- potential future licensing revenue from the AVP-825 License Agreement;
- the initiation, progress, timing, costs and results of clinical trials for our other product candidates; and
- the extent to which we in-license or acquire other products, product candidates or technologies.

We cannot be certain that additional funding will be available when needed on acceptable terms, or at all. If we are unable to raise additional capital in sufficient amounts, when required or on acceptable terms, we also could be required to:

- seek strategic collaborations to assist in the commercialization of XHANCE in the United States and other markets;
- significantly delay, scale back or discontinue the development of XHANCE for the treatment of chronic sinusitis;
- relinquish or license on unfavorable terms our rights to our EDS technology or other product candidates that we otherwise would seek to develop or commercialize ourselves;
- delay, limit, reduce or terminate the drug development of our current or future product candidates, or seek collaborators for one or more of our current or future product candidates at an earlier stage than otherwise would be desirable or on terms that are less favorable than might otherwise be available; or
- significantly curtail our operations.

Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our technologies or product candidates.

We do not have any committed external source of funds other than potential milestone payments and royalties under the AVP-825 License Agreement. Until such time, if ever, as we can generate substantial revenue, we may seek additional capital through a combination of private and public equity offerings, debt financings, collaborations, strategic alliances and licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences that adversely affect your rights as a stockholder. Debt financings may be coupled with an equity component, such as warrants to purchase shares, which could also result in dilution of our existing stockholders' ownership. The incurrence of indebtedness would result in increased fixed payment obligations and could also result in certain restrictive

covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business and may result in liens being placed on our assets and intellectual property. If we were to default on such indebtedness, we could lose such assets and intellectual property.

If we raise additional funds through collaborations, or strategic alliance, marketing, distribution or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, product candidates or future revenue streams or grant licenses on terms that are not favorable to us.

Our ability to use our net operating loss carryforwards and other tax attributes may be limited.

As of December 31, 2016, we had U.S. net operating loss, or NOL, carryforwards of approximately $11.6 million for U.S. federal income tax and state tax purposes available to offset future taxable income and U.S. federal and state research and development tax credits of $2.2 million, prior to consideration of annual limitations that may be imposed under Section 382 of the Internal Revenue Code of 1986, as amended, or Section 382. The U.S. NOL carryforwards begin to expire in 2030 if not utilized. In addition, we had foreign NOLs of $80.6 million as of December 31, 2016, as a result of our operations in Norway and the United Kingdom. Such foreign NOL carryforwards do not expire but can only be used to offset profits generated in each respective country.

While a majority of our NOLs are in foreign jurisdictions and not subject to expiration, our U.S. NOL and tax credit carryforwards could expire unused and be unavailable to offset future income tax liabilities. Under Section 382, and corresponding provisions of U.S. state law, if a corporation undergoes an "ownership change," generally defined as a greater than 50% change, by value, in its equity ownership over a three-year period, the corporation's ability to use its pre-change U.S. NOLs and other pre-change tax attributes, such as research and development tax credits, to offset its post-change income may be limited. We have not performed any analyses under Section 382 and cannot forecast or otherwise determine our ability to derive benefit from our various federal or state tax attribute carryforwards. As a result, if we earn net taxable income, our ability to use our pre-change U.S. NOL carryforwards to offset U.S. federal taxable income may be subject to limitations, which could potentially result in increased future tax liability to us. In addition, at the state level, there may be periods during which the use of U.S. NOLs is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed.

In addition, we may experience ownership changes in the future as a result of subsequent shifts in our stock ownership, including this offering, some of which may be outside of our control. If we determine that an ownership change has occurred and our ability to use our historical net operating loss and tax credit carryforwards is materially limited, it would harm our future operating results by effectively increasing our future tax obligations.

Foreign exchange risks and controls may affect our financial position and results of operations.

Through the operation of our subsidiaries based in the United Kingdom and Norway, we are exposed to foreign currency fluctuations and exchange rate risks. In addition to the operations of our foreign subsidiaries, we also contract with vendors that are located outside the United States, and in some cases make payment of invoices denominated in foreign currencies. We are subject to fluctuations in foreign currency rates in connection with these arrangements and we do not currently hedge our foreign currency exchange rate risk. In addition, because we maintain our consolidated financial statements in U.S. dollars, our financial results are vulnerable to fluctuations in the exchange rate between the U.S. dollar and foreign currencies, such as the British pound sterling, the euro, and the Norwegian krone. In preparing our consolidated financial statements, we must convert all non-U.S. dollar results to U.S. dollars, which impacts our results of operations, is reflected as a component of our stockholder's equity (deficit), and may be credited or charged to operations and reflected in other income (expense), net. The impact of changes in exchange rates has not been significant historically. However, changes in exchange rates could cause significant changes in our financial position and results of operations in the future.

Risks Related to Commercialization of XHANCE

We have no history of commercializing drugs, which may make it difficult for you to evaluate the success of our business to date and to assess our future viability.

Although our predecessor and subsidiary OptiNose AS commenced operations in 2000, our operations to date have been largely focused on raising capital and developing AVP-825 and XHANCE, including undertaking preclinical studies and conducting clinical trials. While we conducted the pre-approval stages of clinical development for AVP-825, Avanir was responsible for completing the clinical development of, obtaining regulatory approval for, and initiating the commercial launch of that product under our license agreement with them. To date, we have not yet demonstrated our ability to successfully manufacture at commercial scale or, with the exception of AVP-825, arrange for a third party to do so on our behalf, or conduct sales, marketing and distribution activities necessary for successful product commercialization. Consequently, any predictions about our future success or viability may not be as accurate as they could be if we had a longer history of successfully developing and commercializing drugs.

If we are unable to successfully commercialize XHANCE, our business, financial condition and results of operations may be materially adversely affected and the price of our common stock may decline.

Our ability to successfully commercialize XHANCE depends on many factors, including:

- our ability to manufacture commercial quantities of XHANCE at a reasonable cost and with sufficient speed to meet commercial demand;
- our ability to engage a third-party sales organization to market and sell XHANCE;
- our success in educating physicians, patients and caregivers about the benefits, administration and use of XHANCE;
- the availability, perceived advantages, relative cost, relative safety and relative efficacy of competing products;
- the availability of coverage and adequate reimbursement for XHANCE;
- our ability to contract with wholesalers and/or specialty pharmaceutical distributors on acceptable terms;
- the effectiveness of our marketing campaigns;
- our effective use of promotional resources;
- a continued acceptable safety profile for XHANCE;
- our ability to obtain appropriate state licenses in the states in which we intend to sell XHANCE; and
- our ability to successfully defend any challenges to our intellectual property relating to XHANCE.

Many of these matters are beyond our control and are subject to other risks described elsewhere in this "Risk Factors" section. Accordingly, we cannot assure you that we will be able to successfully commercialize or generate revenue from XHANCE. If we cannot do so, or are significantly delayed in doing so, our business, financial condition and results of operations may be materially adversely affected and the price of our common stock may decline.

The commercial success of XHANCE will depend upon its acceptance by multiple stakeholders, including physicians, patients and healthcare payors.

Physicians may not prescribe XHANCE, in which case we would not generate the revenues we anticipate. The degree of market acceptance of XHANCE will depend on a number of factors, including:

- demonstration of clinical safety and efficacy;
- relative convenience and ease of administration;
- pricing and cost-effectiveness;
- availability of alternative treatments and perceived advantages over such alternative treatments;
- the clinical indications for which XHANCE is approved;
- the prevalence and severity of any AEs;

- restrictions placed on XHANCE in connection with its approval;
- limitations or warnings contained in the FDA-approved label for XHANCE;
- the effectiveness of our or any future collaborators' sales and marketing strategies;
- consolidation among healthcare providers, which increases the impact of the loss of any relationship;
- our ability to obtain and maintain sufficient third-party coverage and adequate reimbursement; and
- the willingness of patients to pay out-of-pocket in the absence of third-party coverage.

If XHANCE does not achieve an adequate level of acceptance by physicians, patients and healthcare payors, we may not generate sufficient revenue in order to become or remain profitable.

If third-party payors do not reimburse patients for XHANCE or if reimbursement levels are set too low for us to sell XHANCE at a profit, our ability to successfully commercialize XHANCE and our results of operations will be harmed.

Our ability to commercialize XHANCE successfully will depend in part on the extent to which coverage and adequate reimbursement for XHANCE will be available in a timely manner from third-party payors, including governmental healthcare programs such as Medicare and Medicaid, commercial health insurers and managed care organizations. Government authorities and other third-party payors, such as private health insurers and health maintenance organizations, determine which medications they will cover and establish reimbursement levels. Reimbursement decisions by particular third-party payors depend upon a number of factors, including each third-party payor's determination that use of a product is:

- a covered benefit under its health plan;
- appropriate and medically necessary for the specific condition or disease;
- cost effective; and
- neither experimental nor investigational.

Obtaining coverage and reimbursement approval for XHANCE from government authorities or other third-party payors may be a time consuming and costly process that could require us to provide supporting scientific, clinical and cost-effectiveness data, including expensive pharmacoeconomic studies beyond the data required to obtain marketing approval, for the use of XHANCE to each government authority or other third-party payor. We may not be able to provide data sufficient to gain acceptance with respect to coverage and reimbursement.

Third-party payors may deny reimbursement for covered products if they determine that a medical product was not used in accordance with cost-effective diagnosis methods, as determined by the third-party payor, or was used for an unapproved indication. Third-party payors also may refuse to reimburse for procedures and devices deemed to be experimental. Third-party payors may also limit coverage to specific products on an approved list, or formulary, which might not include all of the FDA-approved products for a particular indication.

Increasingly, third-party payors are also requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. These third-party payors could also impose price controls and other conditions that must be met by patients prior to providing coverage for use of XHANCE. For example, insurers may establish a "step-edit" system that requires a patient to first use a lower price alternative product prior to becoming eligible for reimbursement of a higher price product.

Third-party payors are increasingly attempting to contain healthcare costs by limiting both coverage and the level of reimbursement for medical products and services. The process for determining whether a payor will provide coverage for a product may be separate from the process for setting the price or reimbursement rate that the payor will pay for the product once coverage is approved. Levels of reimbursement may also decrease in the future, and future legislation, regulation or reimbursement policies of third-party payors may adversely affect the demand for and reimbursement available for XHANCE, which in turn, could negatively

impact pricing. If patients are not adequately reimbursed for XHANCE, they may reduce or discontinue purchases of it, which would result in a significant shortfall in achieving revenue expectations and negatively impact our business, prospects and financial condition.

If we are unable to differentiate XHANCE from current and future products or existing methods of treatments, our ability to successfully commercialize XHANCE would be adversely affected.

We initially intend to commercialize XHANCE for the treatment of nasal polyps and seek FDA approval for a follow-on indication of XHANCE for the treatment of chronic sinusitis. Currently, Nasonex, marketed by Merck, is the only other drug therapy approved by the FDA for the treatment of nasal polyps. In addition, Beconase AQ, which is an INS marketed by GlaxoSmithKline, is indicated for the prophylaxis of nasal polyps after surgical resection. We are not aware of any product approved for the treatment of chronic sinusitis. In addition to competition from Nasonex and Beconase AQ, we will also need to differentiate XHANCE from other products and treatments identified in current clinical practice guidelines for the treatment of chronic rhinosinusitis with and without nasal polyps. Such products and treatments include the use of nasal rinses, decongestants, over-the-counter and INS products, oral steroids, antibiotics, and sinus surgery and other procedures, including functional endoscopic sinus surgery, balloon sinus dilation and steroid-releasing sinus implants. In addition, several biologic monoclonal antibodies are in clinical development for the treatment of nasal polyps, including omalizumab, reslizumab, mepolizumab and dupilumab. If we are unable to achieve significant differentiation for XHANCE against these other products and treatments, including on the basis of efficacy, safety and tolerability profile, reliability, convenience of administration, price and reimbursement, the opportunity for XHANCE to be commercialized successfully would be adversely affected.

If the market opportunities for XHANCE are smaller than we believe, our revenue may be adversely affected, and our business may suffer.

Our initial target market for XHANCE will consist of ENT physicians, allergists and high-decile INS-prescribing primary care physicians that we believe treat an estimated 3.5 million U.S. patients with chronic rhinosinusitis, an estimated 1.2 million of whom have chronic rhinosinusitis with nasal polyps. If we are able to obtain a follow-on indication of XHANCE for the treatment of chronic sinusitis, we intend to broaden our reach and target primary care physicians that we believe treat an additional estimated 6.25 million patients with chronic rhinosinusitis, an estimated one-third of whom have chronic rhinosinusitis with nasal polyps.

Our projections of both the number of people who suffer from chronic rhinosinusitis with and without nasal polyps, as well as the subset of people with these diseases who have the potential to benefit from use of XHANCE, are based on our beliefs and estimates. These estimates have been derived from a variety of sources, including scientific literature, surveys we commissioned, prescription data or other market research and may prove to be incorrect. Further, new studies may change the estimated incidence or prevalence of chronic rhinosinusitis or nasal polyps. The number of patients may turn out to be lower than expected. Additionally, the potentially addressable patient population for XHANCE may be limited or may not be amenable to treatment with XHANCE, and new patients may become increasingly difficult to identify or gain access to, which would adversely affect our results of operations and our business.

Clinical practice guidelines and recommendations published by various organizations could have significant influence on the use of XHANCE.

Government agencies may promulgate clinical practice guidelines directly applicable to XHANCE. In addition, professional societies, practice management groups, private health and science foundations and organizations involved in various diseases from time to time may also publish guidelines or recommendations to the healthcare and patient communities. Recommendations of government agencies or these other groups or organizations may relate to such matters as usage, dosage, route of administration and use of concomitant therapies. Recommendations or guidelines suggesting the reduced use of XHANCE or

the use of competitive or alternative products as the standard of care to be followed by patients and healthcare providers could result in decreased use of XHANCE.

If we are unable to enter into agreements with third parties to market and sell XHANCE we may be unable to generate any revenue for XHANCE.

We currently have limited sales, marketing or distribution capabilities. We intend to use an outsourced contract sales organization, or CSO, to promote XHANCE to our defined specialty audience of ENT and allergy specialists and high-decile INS-prescribing primary care physicians, although to date we have not entered into any such agreements. Any CSO that we may use may not dedicate sufficient resources to the commercialization of XHANCE or may otherwise fail in its commercialization due to factors beyond our control. Additionally, any CSO that we may use may fail to comply with applicable legal or regulatory requirements, or may enter into agreements with other parties that have products and services that could compete with XHANCE.

In the event that we fail to successfully launch and commercialize XHANCE through a CSO, we may also enter into a strategic collaboration with a third party. We face significant competition in seeking appropriate strategic collaborators, and these strategic collaborations can be intricate and time-consuming to negotiate and document. We may not be able to negotiate strategic collaborations on acceptable terms, or at all. We are unable to predict when, if ever, we will enter into any strategic collaborations because of the numerous risks and uncertainties associated with establishing strategic partnerships.

XHANCE may become associated with undesirable adverse reactions or have other properties that could result in significant negative consequences following regulatory approval.

If we or others identify adverse events, or AEs, associated with XHANCE, a number of potentially significant negative consequences could result, including:

- we may be forced to suspend marketing of XHANCE;
- the FDA may withdraw its approval of XHANCE or impose restrictions on its distribution;
- the FDA may require additional warnings or contradictions in the label that could diminish the usage or otherwise limit the commercial success of XHANCE;
- we may be required to conduct additional post-marketing studies;
- we could be sued and held liable for harm caused to patients; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of XHANCE.

If the FDA or other applicable regulatory authorities approve generic or similar products that compete with XHANCE, it could decrease our expected sales of XHANCE.

Once an NDA, including a Section 505(b)(2) application, is approved, the product covered thereby becomes a "listed drug" which can, in turn, be cited by potential competitors in support of approval of an abbreviated NDA, or ANDA. The FD&C Act, FDA regulations and other applicable regulations and policies provide incentives to manufacturers to create modified, non-infringing versions of a drug to facilitate the approval of an ANDA for generic substitutes. Manufacturers may be able to bring a generic product to market in a much more cost-efficient pathway than we currently anticipate. If the costs involved in bringing such a product to market are significantly less than our costs with respect to the development of XHANCE, companies that produce generic equivalents to XHANCE may be able to offer their products at lower prices. As such, a significant percentage of any future sales of XHANCE could be lost to any such generic products. Moreover, in addition to generic competition, we could face competition from other companies seeking approval of products that are similar to ours using the Section 505(b)(2) pathway. Such applicants may be able to rely on XHANCE or other approved drug products or published literature to develop drug products that are similar to ours. The introduction of a drug product similar to our products or product candidates could expose us to increased competition, leading to a decrease in sales of XHANCE. Competition that we

may face from generic or similar versions of XHANCE could materially and adversely impact our future revenue, profitability, and cash flows.

Even though we have obtained regulatory approval for XHANCE, we will still face extensive FDA regulatory requirements and may face future regulatory difficulties.

Even though we have obtained regulatory approval in the United States for XHANCE, the FDA and state regulatory authorities may still impose significant restrictions on the indicated uses or marketing of XHANCE, or impose ongoing requirements for potentially costly post-approval studies or post-marketing surveillance. For example, as part of its approval of XHANCE for the treatment nasal polyps in adults, the FDA is requiring that we conduct a randomized, double-blind, placebo controlled, parallel group clinical study in children and adolescents 6 to 17 years of age with bilateral nasal polyps associated with nasal congestion to assess the safety, efficacy, pharmacokinetics, and pharmacodynamics of XHANCE in improving nasal polyp grade and symptoms (nasal congestion/obstruction, sense of smell, rhinorrhea and facial pain or pressure). We are required to submit our final protocol to the FDA with respect to the pediatric study by January 2018, to complete the study by January 2022 and to submit a final report with respect to the study by July 2022. Because our EDS for XHANCE was designed for use in adult patients, we may discover that the dimensions of this EDS make it unsuitable for use in pediatric patient populations. As such, this pediatric study may also require us to undergo a costly and time-consuming development process to design and manufacture as appropriate a modified EDS to conduct these studies.

We are also subject to ongoing FDA requirements governing the labeling, packaging, storage, distribution, safety surveillance, advertising, promotion, record-keeping and reporting of safety and other post-marketing information. The holder of an approved NDA is obligated to monitor and report AEs and any failure of a product to meet the specifications in the NDA. The holder of an approved NDA must also submit new or supplemental applications and obtain FDA approval for certain changes to the approved product, product labeling or manufacturing process. Advertising and promotional materials must comply with FDA regulations and may be subject to other potentially applicable federal and state laws. The applicable regulations in countries outside the United States grant similar powers to the competent authorities and impose similar obligations on companies.

In addition, manufacturers of drug products and their facilities are subject to payment of substantial user fees and continual review and periodic inspections by the FDA and other regulatory authorities for compliance with current Good Manufacturing Practice, or cGMP, regulations and adherence to commitments made in the NDA. Since XHANCE is a combination product, we will also need to comply with some of the FDA's manufacturing regulations for devices. In addition to cGMP, the FDA requires that our drug-device combination product comply with the Quality System Regulation, or QSR, which sets forth the FDA's manufacturing quality standards for medical devices, and other applicable government regulations and corresponding foreign standards. If we, or a regulatory authority, discover previously unknown problems with XHANCE, such as AEs, of unanticipated severity or frequency, or problems with a facility where the product is manufactured, a regulatory authority may impose restrictions relative to XHANCE or the manufacturing facility, including requiring recall or withdrawal of the product from the market, suspension of manufacturing, or other FDA action or other action by foreign regulatory authorities.

If we fail to comply with applicable regulatory requirements following approval of XHANCE, a regulatory authority may:

- issue a warning letter asserting that we are in violation of the law;
- seek an injunction or impose civil or criminal penalties or monetary fines;
- suspend, modify or withdraw regulatory approval;
- suspend any ongoing clinical trials;
- refuse to approve a pending NDA or a pending application for marketing authorization or supplements to an NDA or to an application for marketing authorization submitted by us;
- seize our product candidate; and/or
- refuse to allow us to enter into supply contracts, including government contracts.

Our relationships with physicians, patients and payors in the U.S. are subject to applicable anti-kickback, fraud and abuse laws and regulations. Our failure to comply with these laws could expose us to criminal, civil and administrative sanctions, reputational harm, and could harm our results of operations and financial conditions.

Our current and future operations with respect to the commercialization of XHANCE are subject to various U.S. federal and state healthcare laws and regulations. These laws impact, among other things, our proposed sales, marketing, support and education programs and constrain our business and financial arrangements and relationships with third-party payors, healthcare professionals and others who may prescribe, recommend, purchase or provide XHANCE, and other parties through which we market, sell and distribute XHANCE. Finally, our current and future operations are subject to additional healthcare-related statutory and regulatory requirements and enforcement by foreign regulatory authorities in jurisdictions in which we conduct our business. The laws are described in greater detail in the section below under "Business — Government Regulation — Healthcare Fraud and Abuse Laws," and include, but are not limited to:

- the U.S. federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, offering, receiving or paying any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, lease, order, or arranging for or recommending the purchase, lease or order of, any good or service, for which payment may be made, in whole or in part, under federal healthcare programs such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;

- the U.S. civil False Claims Act (which can be enforced through "qui tam," or whistleblower actions, by private citizens on behalf of the federal government), prohibits any person from, among other things, knowingly presenting, or causing to be presented false or fraudulent claims for payment of government funds or knowingly making, using or causing to be made or used, a false record or statement material to an obligation to pay money to the government or knowingly and improperly avoiding, decreasing or concealing an obligation to pay money to the U.S. federal government;

- the U.S. federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which imposes criminal and civil liability for, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement, in connection with the delivery of, or payment for healthcare benefits, items or services by a healthcare benefit program, which includes both government and privately funded benefits programs; similar to the U.S. federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation.

- state laws and regulations, including state anti-kickback and false claims laws, that may apply to our business practices, including but not limited to, research, distribution, sales and marketing arrangements and claims involving healthcare items or services reimbursed by any third-party payor, including private insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the U.S. federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; and state laws and regulations that require drug manufacturers to file reports relating to pricing and marketing information, which requires tracking gifts and other remuneration and items of value provided to healthcare professionals and entities; and

- the Physician Payments Sunshine Act, implemented as the Open Payments program, and its implementing regulations, requires certain manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children's Health Insurance Program to report annually to CMS information related to certain payments made in the preceding calendar

year and other transfers of value to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members.

The shifting commercial compliance environment and the need to build and maintain robust and expandable systems to comply with different compliance or reporting requirements in multiple jurisdictions increase the possibility that a healthcare or pharmaceutical company may fail to comply fully with one or more of these requirements. Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations may involve substantial costs. It is possible that governmental authorities will conclude that our business practices do not comply with applicable fraud and abuse or other healthcare laws and regulations or guidance. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, imprisonment, exclusion from government funded healthcare programs, such as Medicare and Medicaid, additional oversight and reporting requirements if we become subject to a corporate integrity agreement to resolve allegations of non-compliance with these laws and the curtailment or restructuring of our operations. If any of the physicians or other providers or entities with whom we expect to do business is found not to be in compliance with applicable laws, they may be subject to the same criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs. Even if we are not determined to have violated these laws, government investigations into these issues typically require the expenditure of significant resources and generate negative publicity, which could harm our financial condition and divert resources and the attention of our management from operating our business.

Any government investigation of alleged violations of law could require us to expend significant time and resources in response and could generate negative publicity in addition to the aforementioned potential regulatory actions. The occurrence of any event or penalty described above may inhibit our ability to commercialize XHANCE and generate revenues which would have a material adverse effect on our business, financial condition and results of operations.

If we are able to successfully commercialize XHANCE and if we participate in but fail to comply with our reporting and payment obligations under the Medicaid Drug Rebate Program, or other governmental pricing programs, we could be subject to additional reimbursement requirements, penalties, sanctions and fines which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

If we participate in the Medicaid Drug Rebate Program, and other governmental pricing programs, we will be obligated to pay certain specified rebates and report pricing information with respect to XHANCE. Pricing and rebate calculations are complex and are often subject to interpretation by us, governmental or regulatory agencies and the courts. We cannot assure you that our submissions will not be found by the Centers for Medicare & Medicaid Services, or CMS, to be incomplete or incorrect. Governmental agencies may also make changes in program interpretations, requirements or conditions of participation, some of which may have implications for amounts previously estimated or paid. The Medicaid rebate amount is computed each quarter based on our submission to CMS of our current average manufacturer price, or AMP, and best price for the quarter. If we become aware that our reporting for a prior quarter was incorrect, or has changed as a result of recalculation of the pricing data, we are obligated to resubmit the corrected data for a period not to exceed twelve quarters from the quarter in which the data originally were due, and CMS may request or require restatements for earlier periods as well. Such restatements and recalculations increase our costs for complying with the laws and regulations governing the Medicaid Drug Rebate Program. Any corrections to our rebate calculations could result in an overage or underage in our rebate liability for past quarters, depending on the nature of the correction. Price recalculations also may affect the ceiling price at which we are required to offer our products to certain covered entities, such as safety-net providers, under the Public Health Service's 340B drug pricing program, or the 340B program, and under other similar government pricing programs. These programs are described in greater detail in the section below under "Business — Government Regulation — Coverage and Reimbursement."

We will also be liable for errors associated with our submission of pricing data. In addition to retroactive rebates and the potential for 340B program refunds, if we are found to have knowingly submitted false AMP, or best price information to the government, we may be liable for civil monetary penalties in the amount of $181,071 per item of false information. If we are found to have made a misrepresentation in the reporting of our average sales price, we may be liable for civil monetary penalties of up to $13,066 for each misrepresentation for each day in which the misrepresentation was applied. Our failure to submit monthly/quarterly AMP and best price data on a timely basis could result in a civil monetary penalty of $18,107 per day for each day the information is late beyond the due date. Such failure also could be grounds for CMS to terminate our Medicaid drug rebate agreement, pursuant to which we participate in the Medicaid program. In the event that CMS terminates our rebate agreement, federal payments may not be available under Medicaid for XHANCE. A final regulation imposes a civil monetary penalty of up to $5,000 for each instance of knowingly and intentionally charging a 340B covered entity more than the 340B ceiling price.

Federal law requires that a company must participate in the U.S. Department of Veterans Affairs, or VA, Federal Supply Schedule, or FSS, pricing program to be eligible to have its products paid for with federal funds. As part of this program, we would be obligated to make XHANCE available for procurement on an FSS contract under which we must comply with standard government terms and conditions and charge a price that is no higher than the statutory Federal Ceiling Price, or FCP, to four federal agencies (VA, U.S. Department of Defense, or DOD, Public Health Service, and U.S. Coast Guard). The FCP is based on the Non-Federal Average Manufacturer Price, or Non-FAMP, which we calculate and report to the VA on a quarterly and annual basis. If we overcharge the government in connection with our FSS contract or Section 703 Agreement, whether due to a misstated FCP or otherwise, we are required to refund the difference to the government. Failure to make necessary disclosures and/or to identify contract overcharges can result in allegations against us under the U.S. civil False Claims Act and other laws and regulations. Unexpected refunds to the government, and responding to a government investigation or enforcement action, would be expensive and time-consuming, and could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

Regulatory approval for any approved product is limited by the FDA to those specific indications and conditions for which clinical safety and efficacy have been demonstrated.

Our promotional materials, statements and training methods must comply with applicable laws and regulations, including FDA's prohibition of the promotion of unapproved, or off-label, use. Physicians may use our products off-label, as the FDA does not restrict or regulate a physician's independent choice of treatment within the practice of medicine. As healthcare professionals frequently prescribe corticosteroids for the treatment of chronic nasal inflammatory diseases, such as chronic rhinosinusitis, doctors could prescribe XHANCE for the treatment of chronic sinusitis and other chronic nasal inflammatory diseases, even though the FDA has granted approval of XHANCE only for the treatment of nasal polyps. If the FDA determines that our promotional materials, statements or activities constitute promotion of an off-label use, we could be required to modify our promotional materials, statements or training methods or subject us to regulatory or enforcement actions, such as the issuance of an untitled letter, a warning letter, injunction, seizure, civil fine, disgorgement of money, operating restrictions or criminal penalties. We may also be subject to actions by other governmental entities or private parties, such as the U.S. civil False Claims Act, civil whistleblower or "qui tam" actions. It is also possible that other federal, state or foreign enforcement authorities might take action if they consider our promotional, materials or activities to constitute promotion of an off-label use, which could result in significant fines or penalties under other statutory authorities. In that event, our reputation could be damaged and market adoption of XHANCE could be impaired.

Even though we have obtained FDA approval for XHANCE in the United States, we may never obtain approval for or successfully commercialize it outside of the United States, which would limit our ability to realize its full market potential.

In order to market XHANCE outside of the United States, we must obtain marketing authorizations and comply with numerous and varying regulatory requirements of other countries regarding quality, safety and efficacy. Clinical trials conducted in one country may not be accepted by foreign regulatory authorities, and regulatory approval in one country does not mean that regulatory approval will be obtained in any other country. Approval processes vary among countries and can involve additional product testing and validation and additional administrative review periods. Seeking foreign regulatory approval could result in difficulties and costs for us and require additional non-clinical studies or clinical trials, which could be costly and time consuming. Regulatory requirements can vary widely from country to country and could delay or prevent the introduction of XHANCE in those countries. While our management team has experience in obtaining foreign regulatory approvals at other companies, we do not have any product candidates approved for sale in any foreign jurisdiction, and we, as a company, do not have experience in obtaining regulatory approval in international markets. If we fail to comply with regulatory requirements in international markets or to obtain and maintain required approvals, or if regulatory approval in international markets is delayed, our target market for XHANCE will be reduced and we would not be able to realize the full market potential of XHANCE.

The Affordable Care Act and any changes in healthcare law may increase the difficulty and cost for us to commercialize XHANCE and affect the prices we may obtain.

The United States and many foreign jurisdictions have enacted or proposed legislative and regulatory changes affecting the healthcare system that could restrict or regulate post-approval activities and affect our ability to profitably sell XHANCE. The United States government, state legislatures and foreign governments also have shown significant interest in implementing cost-containment programs to limit the growth of government-paid healthcare costs, including price controls, restrictions on reimbursement and requirements for substitution of generic products for branded prescription drugs.

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act, or collectively the Affordable Care Act was intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add transparency requirements for the healthcare and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms. These intended reforms are described in greater detail in the section below under "Business — Government Regulation — U.S. Healthcare Reform."

Among the provisions of the Affordable Care Act that have been implemented since enactment and are of importance to the commercialization of XHANCE are the following:

- an annual, nondeductible fee on any entity that manufactures or imports specified branded prescription drugs or biologic agents;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program;
- expansion of healthcare fraud and abuse laws, including the U.S. civil False Claims Act and the Anti-Kickback Statute, new government investigative powers, and enhanced penalties for noncompliance;
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for a manufacturer's outpatient drugs to be covered under Medicare Part D;
- extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;

- a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted, or injected;
- expansion of eligibility criteria for Medicaid programs;
- expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program;
- requirements to report certain financial arrangements with physicians and teaching hospitals;
- a requirement to annually report certain information regarding drug samples that manufacturers and distributors provide to physicians; and
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

Legislative changes to or regulatory changes under the Affordable Care Act remain possible in the 115th U.S. Congress and under the Trump Administration. The American Health Care Act of 2017, or AHCA, which would repeal and replace key portions of the Affordable Care Act was passed by the U.S. House of Representatives but remains subject to passage by the U.S. Senate. In addition, in January 2017, President Trump signed an Executive Order directing federal agencies with authorities and responsibilities under the Affordable Care Act to waive, defer, grant exemptions from, or delay the implementation of any provision of the Affordable Care Act that would impose a fiscal or regulatory burden on states, individuals, healthcare providers, health insurers, or manufacturers of pharmaceuticals or medical devices. More recently, the Senate Republicans introduced and then updated a bill to replace the Affordable Care Act known as the Better Care Reconciliation Act of 2017. The Senate Republicans also introduced legislation to repeal the Affordable Care Act without companion legislation to replace it, and a "skinny" version of the Better Care Reconciliation Act of 2017. Each of these measures was rejected by the full Senate. Congress will likely consider other legislation to replace elements of the Affordable Care Act. We expect that the Affordable Care Act, as currently enacted or as it may be amended in the future, and other healthcare reform measures that may be adopted in the future could have a material adverse effect on our industry generally and on our ability to maintain or increase sales of XHANCE or to successfully commercialize XHANCE.

We expect that the Affordable Care Act, as well as other healthcare reform measures that have and may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for XHANCE and could seriously harm our future revenues. Any reduction in reimbursement from Medicare, Medicaid, or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize XHANCE.

Product liability lawsuits against us could cause us to incur substantial liabilities and to limit commercialization of XHANCE and any other product candidates that we may develop.

We currently face an inherent risk of product liability exposure related to the testing of our product candidates in human clinical trials, and this risk will increase significantly as we commercialize XHANCE and other product candidates that we may develop. We may face product liability claims, regardless of FDA approval for commercial manufacturing and sale as product liability claims may be brought against us by patients who have used XHANCE in any of our clinical trials, future patients, healthcare providers or others using, administering or selling our products, if and when approved. If we cannot successfully defend ourselves against claims that our product candidates or products caused injuries, we could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for XHANCE;
- injury to our reputation and significant negative media attention;
- termination of clinical trial sites or entire trial programs that we conduct in the future relating to XHANCE or our other product candidates;

- withdrawal of clinical trial participants from any future clinical trial relating to XHANCE or our other product candidates;
- significant costs to defend the related litigation;
- substantial monetary awards to patients;
- loss of revenue;
- diversion of management and scientific resources from our business operations; and
- an increase in product liability insurance premiums or an inability to maintain product liability insurance coverage.

We currently carry product liability insurance with coverage up to $5.0 million in the aggregate, with a per incident limit of $5.0 million, which may not be adequate to cover all liabilities that we may incur. Further, we may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise. Our inability to maintain sufficient product liability insurance at an acceptable cost could prevent or inhibit the commercialization of XHANCE or the development of our other product candidates.

Additionally, any agreements we may enter into in the future with collaborators in connection with the development or commercialization of XHANCE or any of our other product candidates may entitle us to indemnification against product liability losses, but such indemnification may not be available or adequate should any claim arise. In addition, several of our agreements require us to indemnify third parties and these indemnifications obligations may exceed the coverage under our product liability insurance policy. For example, the AVP-825 License Agreement provides for reciprocal indemnification obligations for each of the parties in the event that a product liability claim arises from, among other things, one party's development, manufacture, sale or commercialization activities for AVP-825.

Risks Related to Clinical Development and Regulatory Approval of XHANCE for the Treatment of Chronic Sinusitis and Our Other Product Candidates

The design and execution of clinical trials to support FDA-approval of XHANCE for the treatment of chronic sinusitis is subject to substantial risk and uncertainty.

We intend to initiate a clinical program to support a follow-on indication of XHANCE for the treatment of chronic sinusitis. Similar to our NDA for XHANCE for the treatment of nasal polyps, we believe we may also be able to use the Section 505(b)(2) pathway for potential U.S. approval for XHANCE for the treatment of chronic sinusitis. Because there is no FDA-approved product for the treatment of chronic sinusitis, we believe there is substantial risk and uncertainty in planning and conducting adequate clinical trials to meet FDA requirements to support approval for this indication. If the clinical program required by the FDA is more costly or time-consuming than anticipated, we may decide to not pursue this follow-on indication. Additionally, if we do conduct clinical trials for this indication, XHANCE may not demonstrate sufficient efficacy or safety to support FDA approval. If we do not obtain a follow-on indication for the treatment of chronic sinusitis, our promotion of XHANCE will be limited to nasal polyps, which would limit our potential sales of XHANCE.

The regulatory approval processes of the FDA are lengthy, time consuming and inherently unpredictable, and if we are ultimately unable to obtain regulatory approval for our product candidates, our business will be substantially harmed.

The time required to obtain approval by the FDA is unpredictable but typically takes many years following the commencement of clinical trials and depends upon numerous factors, including the substantial discretion of the regulatory agency. In addition, approval policies, regulations, or the type and amount of clinical data necessary to gain approval may change during the course of a product candidate's clinical development. It is possible that none of our existing product candidates or any product candidates we may seek to develop in the future will ever obtain regulatory approval.

Our product candidates could fail to receive regulatory approval for many reasons, including the following:

- the FDA may not accept our NDA filing;
- the FDA may disagree with the design, scope or implementation of our clinical trials;
- we may be unable to demonstrate to the satisfaction of the FDA that a product candidate is safe and effective for its proposed indication;
- we may be unable to demonstrate that a product candidate's clinical and other benefits outweigh its safety risks;
- the FDA may disagree with our interpretation of data from preclinical studies or clinical trials;
- the data collected from clinical trials of our product candidates may not be sufficient to support the submission of an NDA;
- the FDA may fail to approve the manufacturing processes or facilities of third-party manufacturers with which we contract for clinical and commercial supplies; and
- the approval policies or regulations of the FDA may change in a manner rendering our clinical data insufficient for approval.

With the exception of our NDA submission for XHANCE, we have not previously submitted an NDA or any similar drug approval filing to the FDA for any product candidate, and we cannot be certain that any of our current product candidates will receive regulatory approval. If we do not receive regulatory approval for our product candidates, we may not be able to continue our operations. Even if we successfully obtain regulatory approval to market one or more of our product candidates, our revenue will be dependent, to a significant extent, upon the size of the markets in the territories for which we gain regulatory approval. If the markets for patients or indications that we are targeting are not as significant as we estimate, we may not generate significant revenue from sales of such products, if approved.

Clinical development is a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future trial results. Clinical failure can occur at any stage of clinical development.

Clinical trials are expensive, can take many years to complete and have highly uncertain outcomes. Failure can occur at any time during the clinical trial process as a result of inadequate performance of a drug, inadequate adherence by patients or investigators to clinical trial protocols, or other factors. Drug candidates in later stages of clinical trials may fail to show the desired safety and efficacy traits despite having progressed through earlier clinical trials. A number of companies in the pharmaceutical industry have suffered significant setbacks in advanced clinical trials as a result of a lack of efficacy or adverse safety profiles, despite promising results in earlier trials. Our clinical trials for the follow-on indication of XHANCE for the treatment of chronic sinusitis or our other product candidates may not be successful or may be more expensive or time-consuming than we currently expect. If clinical trials for these product candidates fail to demonstrate safety or efficacy to the satisfaction of the FDA, the FDA may not approve that product candidate and we would not be able to commercialize it, which could impair our ability to gain or maintain profitability.

Delays in clinical trials are common and have many causes, and any delay could result in increased costs to us and jeopardize or delay our ability to obtain regulatory approval and commence product sales.

We may experience delays in clinical trials of our product candidates or the time required to complete clinical trials for our product candidates may be longer than anticipated. Our future clinical trials may not begin on time, have an effective design, enroll a sufficient number of patients, or be completed on schedule, if at all. Our clinical trials can be delayed for a variety of reasons, including, but not limited to:

- inability to raise funding necessary to initiate or continue a clinical trial;
- delays in obtaining regulatory approval to commence a clinical trial;
- delays in reaching agreement with the FDA or foreign regulatory authorities on final trial design or the scope of the development program;

- imposition of a clinical hold following an inspection of our clinical trial operations or trial sites by the FDA or foreign regulatory authorities;
- delays in reaching agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical trial sites;
- delays in obtaining required institutional review board, or IRB, approval;
- delays in recruiting suitable patients to participate in a clinical trial;
- patients' delays or failure to complete participation in a clinical trial or return for post-treatment follow-up;
- clinical sites dropping out of a clinical trial;
- time required to add new clinical sites; or
- delays by our contract manufacturing organizations, or CMOs, to produce and deliver a sufficient supply of clinical trial materials.

If clinical trials for our product candidates are delayed for any of the above reasons or other reasons, our development costs may increase, our approval process could be delayed and our ability to commercialize our product candidates could be materially harmed.

We will need to identify proprietary names for our product candidates that are acceptable to FDA, and any delay associated with doing so may adversely impact our business.

Any proprietary name we propose to use with our product candidates in the United States must be reviewed and accepted by the FDA, regardless of whether we have registered it, or applied to register it, as a trademark. The FDA reviews any proposed product name, including an evaluation of potential for confusion with other product names. The FDA may also object to a product name if it believes the name inappropriately implies medical claims or contributes to an overstatement of efficacy. If the FDA objects to any proposed proprietary product name, we may be required to expend significant additional resources in an effort to identify a suitable proprietary product name that would qualify under applicable laws, not infringe the existing rights of third parties and be acceptable to the FDA.

Our product candidates, if approved, may require REMS, which may significantly increase our costs.

Our product candidates, if approved, may require REMS. The REMS may include requirements for special labeling or medication guides for patients, special communication plans to healthcare professionals and restrictions on distribution and use. We cannot predict the specific scope or magnitude of REMS that may be required as part of the FDA's approval of our other product candidates. Depending on the extent of the REMS requirements, our costs to commercialize our product candidates may increase significantly and distribution restrictions could limit sales. Similar requirements may arise in countries outside of the United States.

Changes in regulatory requirements and guidance may occur and we may need to amend clinical trial protocols submitted to applicable regulatory authorities to reflect these changes. Amendments may require us to resubmit clinical trial protocols to IRBs or ethics committees for re-examination, which may impact the costs, timing or successful completion of a clinical trial.

The FDA's and other regulatory authorities' policies may change, and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our other product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained.

If we are required to conduct additional clinical trials or other studies with respect to our product candidates beyond those that we currently contemplate, or if we are unable to successfully complete our clinical trials or other studies, we may be delayed in obtaining regulatory approval of any of our product

candidates, we may not be able to obtain regulatory approval at all or we may obtain approval of indications that are not as broad as intended. Our product development costs will also increase if we experience delays in testing or approvals, and we may not have sufficient funding to complete the testing and approval process for our product candidates. Significant clinical trial delays could allow our competitors to bring products to market before we do and impair our ability to commercialize our products if and when approved. If any of this occurs, our business would be harmed.

Risks Related to Our Reliance on Third Parties

If we encounter difficulties in negotiating commercial manufacturing and supply agreements with our third-party manufacturers and suppliers of XHANCE, our ability to commercialize XHANCE would be impaired.

We do not own any manufacturing facilities and have limited experience in drug development and commercial manufacturing. We currently have no plans to build our own clinical or commercial scale manufacturing facility. We lack the resources and expertise to manufacture and test, on a commercial scale, the technical performance of XHANCE and our other product candidates. We currently rely, and expect to continue to rely, on a limited number of experienced personnel and CMOs and suppliers who assist in the production, assembly, test, supply, storage and distribution of XHANCE and its components in our clinical trials and FDA registration, and we control only some of the aspects of their activities. We may not be able to obtain terms that are favorable to us or enter into commercial manufacturing and supply agreements at all with each of the necessary third parties. If we are unable to enter into such agreements on commercially reasonable terms, our ability to commercialize XHANCE would be impaired, and our business, financial condition and results of operations would be materially adversely affected.

If we encounter issues with our contract manufacturers or suppliers, we may need to qualify alternative manufacturers or suppliers, which could impair our ability to sufficiently and timely manufacture and supply XHANCE.

We currently depend on contract manufacturers and suppliers for XHANCE and its components. Although we could obtain each of these components from other third-party suppliers, we would need to qualify and obtain FDA approval for another contract manufacturer or supplier as an alternative source for each such component, which could be costly and cause significant delays. Each of our current commercial manufacturing and supply agreements include limitations on our ability to utilize alternative manufacturers or suppliers for these components above certain specified thresholds during the terms of the agreements, which impairs our ability to prepare in advance for any future manufacturing and supply shortages or quality issues.

In addition, some of our suppliers, including our active pharmaceutical ingredient, or API, supplier and our contract manufacturers, conduct their manufacturing operations for us at a single facility. Unless and until we qualify additional facilities, we may face limitations in our ability to respond to manufacturing and supply issues. For example, if regulatory, manufacturing or other problems require one of these manufacturers or suppliers to discontinue production at their respective facility, or if the equipment used for the production of XHANCE in these facilities is significantly damaged or destroyed by fire, flood, earthquake, power loss or similar events, the ability of such manufacturer or supplier to provide components or API needed for XHANCE, or to manufacture XHANCE may be significantly impaired. In the event that these parties suffer a temporary or protracted loss of its facility or equipment, we would still be required to obtain FDA approval to qualify a new manufacturer or supplier, as applicable, as an alternate manufacturer or source for the respective component before any components manufactured by such manufacturer or by such supplier could be sold or used.

Any production shortfall that impairs the supply of XHANCE or any of these components could have a material adverse effect on our business, financial condition and results of operations and adversely affect our ability to satisfy demand for XHANCE, which could adversely affect our product sales and operating results materially.

If third-party manufacturers, wholesalers and distributors fail to devote sufficient time and resources to XHANCE or their performance is substandard, our product launch may be delayed and our costs may be higher than expected.

Our reliance on a limited number of manufacturers, wholesalers and distributors exposes us to the following risks, any of which could delay FDA approval of our product candidates and commercialization of our products, result in higher costs, or deprive us of potential product revenues:

- our CMOs, or other third parties we rely on, may encounter difficulties in achieving the volume of production needed to satisfy commercial demand, may experience technical issues that impact quality or compliance with applicable and strictly enforced regulations governing the manufacture of pharmaceutical products, and may experience shortages of qualified personnel to adequately staff production operations;
- our wholesalers and distributors could become unable to sell and deliver XHANCE for regulatory, compliance and other reasons;
- our CMOs, wholesalers and distributors could default on their agreements with us to meet our requirements for commercialization of XHANCE;
- our CMOs, wholesalers and distributors may not perform as agreed or may not remain in business for the time required to successfully produce, store, sell and distribute our products and we may incur additional cost; and
- if our CMOs, wholesalers and distributors were to terminate our arrangements or fail to meet their contractual obligations, we may be forced to delay our commercial programs.

Our reliance on third parties reduces our control over our product candidate development and commercialization activities but does not relieve us of our responsibility to ensure compliance with all required legal, regulatory and scientific standards. For example, the FDA and other regulatory authorities require that our product candidates and any products that we may eventually commercialize be manufactured according to cGMP and similar foreign standards. Any failure by our third-party manufacturers to comply with cGMP or failure to scale up manufacturing processes, including any failure to deliver sufficient quantities of product candidates in a timely manner, could lead to a delay in, or failure to obtain, regulatory approval of any of our product candidates. In addition, such failure could be the basis for the FDA to issue a warning or untitled letter, withdraw approvals for product candidates previously granted to us, or take other regulatory or legal action, including recall or seizure, total or partial suspension of production, suspension of ongoing clinical trials, refusal to approve pending applications or supplemental applications, detention or product, refusal to permit the import or export of products, injunction, imposing civil penalties or pursuing criminal prosecution.

Manufacturing issues may arise that could increase product and regulatory approval costs or delay commercialization.

As we scale up manufacturing of XHANCE and conduct required stability testing, issues may arise involving product-packaging and third-party equipment malfunctions. These issues may require refinement or resolution in order to proceed with commercial marketing of XHANCE. In addition, quality issues may arise during scale-up and validation of commercial manufacturing processes. Any issues in our product or delivery devices could result in increased scrutiny by regulatory authorities, delays in our regulatory approval process, increases in our operating expenses, or failure to obtain or maintain approval for our products.

We rely on third parties to conduct our clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, or if they terminate their agreement with us, we may not be able to obtain regulatory approval for or commercialize our product candidates.

We have relied upon and plan to continue to rely upon CROs to monitor and manage data for our prospective preclinical and clinical programs. We rely on these parties for execution of our clinical trials, and we control only some of the aspects of their activities. Nevertheless, we are responsible for ensuring

that each of our studies and clinical trials are conducted in accordance with the applicable protocol, legal, regulatory and scientific standards, and our reliance on the CROs does not relieve us of our regulatory responsibilities. We and our CROs are required to comply with federal regulations and current Good Clinical Practices, or GCP, which are international standards meant to protect the rights and health of patients and to define the roles of clinical trial sponsors, advisors and monitors. GCPs are enforced by the FDA and foreign regulatory authorities in the form of International Conference on Harmonization, or ICH, guidelines for all of our product candidates in clinical development. Regulatory authorities enforce these GCP through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of our CROs fail to comply with applicable GCP and other regulations, including as a result of any recent changes in such regulations, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. We cannot assure you that upon inspection by a given regulatory authority, such regulatory authority will determine that any of our clinical trials comply with GCP requirements. In addition, our clinical trials must be conducted with product produced under cGMP requirements. While we have agreements governing activities of our CROs, we have limited influence over their actual performance. Failure to comply with applicable regulations in the conduct of the clinical trials for our product candidates may require us to repeat preclinical studies and clinical trials, which would increase our operating expenses and delay the regulatory approval process.

Our CROs are not our employees, and except for remedies available to us under our agreements with such CROs, we cannot control whether or not they devote sufficient time and resources to our ongoing clinical and preclinical programs. If our CROs do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols, regulatory requirements or for other reasons or if we receive additional FDA notices that do require corrective action, our clinical trials may be extended, delayed or terminated and we may not be able to obtain regulatory approval for or successfully commercialize our product candidates. As a result, the commercial prospects for our product candidates would be harmed, our costs could increase substantially and our ability to generate revenue could be delayed.

Switching or adding additional CROs involves additional cost and requires management time and focus. Identifying, qualifying and managing performance of third-party service providers can be difficult, time-consuming and cause delays in our development programs. In addition, there is a natural transition period when a new CRO commences work and the new CRO may not provide the same type or level of services as the original provider. Though we carefully manage our relationships with our CROs, there can be no assurance that we will not encounter challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, financial condition and prospects. If any of our relationships with our CROs terminate, we may not be able to enter into arrangements with alternative CROs or to do so on commercially reasonable terms. As a result, delays may occur, which can materially impact our ability to meet our desired clinical development timelines.

Because we have relied on third parties, our internal capacity to perform these functions is limited. Outsourcing these functions involves risks that third parties may not perform to our standards, may not produce results in a timely manner or may fail to perform at all. In addition, the use of third-party service providers requires us to disclose our proprietary information to these parties, which could increase the risk that this information will be misappropriated. We currently have a small number of employees, which limits the internal resources we have available to identify and monitor our third-party providers. To the extent we are unable to identify and successfully manage the performance of third-party service providers in the future, our ability to advance our product candidates through clinical trials will be compromised. Though we carefully manage our relationships with our CROs, there can be no assurance that we will not encounter similar challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, financial condition and prospects.

Risks Related to Our Business Operations and Industry

Our future success depends on our ability to retain and have the full attention of our key executives and to attract, retain and motivate other qualified personnel.

We are highly dependent on the management, development, clinical, financial and business development expertise of our executive team and, in particular, the services of Peter K. Miller, our Chief Executive Officer, and Ramy A. Mahmoud, our President and Chief Operating Officer. Each of Mr. Miller and Dr. Mahmoud is employed by us at will and is permitted to terminate his employment with us at any time. We anticipate entering into new employment agreements with Mr. Miller and Dr. Mahmoud to be effective upon the consummation of this offering, but we expect that Mr. Miller and Dr. Mahmoud will continue to be employed at will. We do not maintain "key person" insurance for any of our executives or other employees. The loss of the services of Mr. Miller or Dr. Mahmoud could impede the achievement of our development and commercialization objectives.

Recruiting and retaining qualified employees for our business, including scientific, technical and sales and marketing personnel, will also be critical to our success. Competition for skilled personnel in our industry is intense and the turnover rate can be high. We may not be able to attract and retain personnel on acceptable terms given the competition among numerous pharmaceutical companies for individuals with similar skill sets. In addition, failure to succeed in our commercialization efforts or in the performance of any future clinical studies may make it more challenging to recruit and retain qualified personnel. The inability to recruit or loss of the services of any executive or key employee could impede the progress of our research, development and commercialization objectives.

We will need to grow the size of our organization, and we may experience difficulties in managing this growth.

Implementation of our development and commercialization strategies will require additional managerial, operational, sales, marketing, financial and other resources. Our current management, personnel and systems may not be adequate to effectively manage the expansion of our operations, which may result in weaknesses in our infrastructure, give rise to operational mistakes, loss of business opportunities, employee turnover and reduced productivity. Future growth could require significant capital expenditures and may divert financial resources from other projects, such as the development of our existing or future product candidates. Future growth would impose significant added responsibilities on members of management, including:

- managing the commercialization of any approved product candidates;
- overseeing our preclinical studies and clinical trials effectively;
- identifying, recruiting, maintaining, motivating and integrating additional employees, including any sales and marketing personnel engaged in connection with the commercialization of any approved product;
- managing our internal development efforts effectively while complying with our contractual obligations to licensors, licensees, contractors and other third parties; and
- improving our managerial, development, operational and financial systems and procedures.

As our operations expand, we will need to manage additional relationships with various strategic collaborators, suppliers and other third parties. Our future financial performance and our ability to commercialize our product candidates and to compete effectively will depend, in part, on our ability to manage any future growth effectively. To that end, we must be able to manage our development efforts and clinical trials effectively and hire, train and integrate additional management, administrative and sales and marketing personnel. Failure to accomplish any of these activities could prevent us from successfully growing our company.

We are subject to intense competition and, if we are unable to compete effectively, our product candidates, if approved, may not reach their commercial potential.

The development and commercialization of new drugs is highly competitive and subject to rapid and significant technological change as research provides a deeper understanding of the pathology of diseases and new technologies and treatments are developed. We face competition with respect to XHANCE from INS, oral steroids and other medical management products, and will face competition with respect to any other product candidates that we may seek to develop or commercialize in the future, from many different sources, including large pharmaceutical, biotechnology, specialty pharmaceutical and, to a lesser degree, medical device companies.

The key competitive factors that we expect to impact the commercial success of XHANCE and any other product candidates we may develop are likely to be their efficacy, safety and tolerability profile, reliability, convenience of administration, price and reimbursement. Nasonex, marketed by Merck, is currently the only other drug therapy approved by the FDA for the treatment of nasal polyps, which is our initial indication for XHANCE. In addition, Beconase AQ, which is an INS marketed by GlaxoSmithKline, is indicated for the prophylaxis of nasal polyps after surgical resection. We are not aware of any drug therapy approved by the FDA or foreign regulatory agencies for the treatment of chronic sinusitis.

Even though they have not been approved for the treatment of such indications, published clinical practice guidelines do recommend the use of INS products for the treatment of chronic rhinosinusitis and nasal polyps in an effort to maximize medical therapy prior to surgical intervention. Currently approved INS products include Rhinocort, marketed by AstraZeneca, Nasacort AQ, marketed by sanofi-aventis, Beconase AQ, Flonase, and Veramyst, each marketed by GlaxoSmithKline, Qnasl, marketed by Teva Pharmaceuticals, and Omnaris and Zetonna, each marketed by Sunovion Pharmaceuticals. Due to the limitations of current treatments, several companies are investigating the treatment of nasal polyps with biologic monoclonal antibodies. To date, four biologic monoclonal antibodies have been studied in nasal polyps: omalizumab, reslizumab, mepolizumab and dupilumab. Most of these INS and biologics companies, as well as other potential competitors, have substantially greater financial, technical and human resources than we do and significantly greater experience in the discovery and development of product candidates, obtaining FDA and other regulatory approvals of products and the commercialization of those products.

Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a small number of our competitors. Accordingly, our competitors may be more successful than we may be in obtaining FDA approval of drugs and achieving widespread market acceptance. Our competitors' drugs, or drugs they may develop in the future, may be more effective, or more effectively marketed and sold, than any drug we may commercialize and may render XHANCE or any of our other product candidates we may develop obsolete or non-competitive before we can recover the expenses of developing and commercializing XHANCE or any of our other product candidates. Our competitors may also obtain FDA or other regulatory approval of products more rapidly than expected or may obtain better or preferred market access by offering large rebates to payors or by other means. We may not have accurately or completely predicted the development of new and improved or low-cost surgical interventions, alternative medical therapies or other market-disrupting events. If we are unable to manufacture, distribute, stimulate demand reaching the predicted market share, overcome barriers to access or otherwise effectively commercialize the product, all of which factors may be influenced by current or future competition, then our opportunity to generate revenue from the sale of XHANCE or any of our other product candidates, if approved, will be compromised.

Our long-term growth depends on our ability to develop and commercialize additional ENT products.

It is important to our business that we continue to build a more complete product offering within the ENT and allergy markets. We are using our proprietary EDS technology to develop new product candidates for use in the ENT and allergy markets. Developing additional product candidates is expensive and time-consuming and could divert management's attention away from the commercialization of XHANCE. Even if we are successful in developing additional product candidates, the success of any new product candidates or enhancement to any existing product candidates will depend on several factors, including our ability to:

- properly identify and anticipate ENT and allergy physician and patient needs;
- develop, obtain necessary regulatory clearances or approvals, and introduce new product candidates or product enhancements in a timely manner;
- demonstrate, if required, the safety and efficacy of new product candidates with data from preclinical studies and clinical trials;
- avoid infringing upon the intellectual property rights of third parties;
- comply with all regulations relating to the marketing of new product candidates, including any new or modified EDS technologies; and
- provide adequate training to potential users of our product candidates.

If we are unsuccessful in developing and commercializing additional product candidates in other areas of the ENT and allergy markets, our ability to gain and maintain profitability may be impaired.

We may acquire other assets or businesses, or form collaborations or make investments in other companies or technologies, which could negatively impact our operating results, dilute our stockholders' ownership, increase our debt or cause us to incur significant expense.

As part of our business strategy, we may pursue acquisitions of assets, including preclinical, clinical or commercial-stage products or product candidates, businesses or strategic alliances and collaborations, to expand our existing technologies and operations. We may not identify or complete these transactions in a timely manner, on a cost-effective basis, or at all, and we may not realize the anticipated benefits of any such transaction. We may not be able to find suitable acquisition candidates, and if we make any acquisitions, we may not be able to complete technology transfers and integrate these acquisitions successfully into our existing business and we may incur additional debt or assume unknown or contingent liabilities as part of the transaction. Integration of an acquired company or assets may also disrupt ongoing operations, require the hiring of additional personnel and the implementation of additional internal systems and infrastructure, especially the acquisition of commercial assets, and require management resources that would otherwise focus on developing our existing business. We may not be able to find suitable strategic collaborators or identify other investment opportunities, and we may experience losses related to any such investments.

To finance any acquisitions or collaborations, we may choose to issue debt or shares of our common or preferred stock as consideration. Any such issuance of shares would dilute the ownership of our stockholders. If the price of our common stock is low or volatile, we may not be able to acquire other assets or companies or fund a transaction using our stock as consideration. Alternatively, it may be necessary for us to raise additional funds for acquisitions through public or private financings. Additional funds may not be available on terms that are favorable to us, or at all.

Our employees, collaborators, independent contractors, principal investigators, consultants, vendors and CROs may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk that our employees, collaborators, independent contractors, principal investigators, consultants, vendors and CROs may engage in fraudulent or other illegal activity with respect to our business. Misconduct by these employees could include intentional, reckless and/or negligent conduct or unauthorized activity that violates:

- FDA regulations, including those laws requiring the reporting of true, complete and accurate information to the FDA;
- manufacturing standards;
- federal and state healthcare fraud and abuse laws and regulations; or
- laws that require the true, complete and accurate reporting of financial information or data.

In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Misconduct by these parties could also involve individually identifiable information, including, without limitation, the improper use of information obtained in the course of clinical trials, or illegal misappropriation of drug product, which could result in regulatory sanctions and serious harm to our reputation. Any incidents or any other conduct that leads to an employee receiving an FDA debarment could result in a loss of business from third parties and severe reputational harm.

In connection with this offering, we will adopt a Code of Business Conduct and Ethics to govern and deter such behaviors, but it is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of civil, criminal and administrative penalties, damages, monetary fines, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, contractual damages, reputational harm, diminished profits and future earnings, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, and curtailment of our operations.

The security of our information technology systems may be compromised, and confidential information, including non-public personal information that we maintain, could be improperly disclosed.

Our information technology systems may be vulnerable to physical or electronic intrusions, computer viruses or other attacks. As part of our business, we and our vendors maintain large amounts of confidential information, including non-public personal information on patients and our employees. Breaches in security could result in the loss or misuse of this information, which could, in turn, result in potential regulatory actions or litigation, including material claims for damages, interruption to our operations, damage to our reputation or otherwise have a material adverse effect on our business, financial condition and operating results. We expect to have appropriate information security policies and systems in place in order to prevent unauthorized use or disclosure of confidential information, including non-public personal information, there can be no assurance that such use or disclosure will not occur.

If we fail to comply with data protection laws and regulations, we could be subject to government enforcement actions, which could include civil or criminal penalties, as well as private litigation and/or adverse publicity, any of which could negatively affect our operating results and business.

We may be subject to laws and regulations that address privacy and data security of patients who use our product candidates in the United States and in states in which we conduct our business. In the United States, numerous federal and state laws and regulations, including state data breach notification laws, state health information privacy laws, and federal and state consumer protection laws (e.g., Section 5 of the Federal Trade Commission Act) govern the collection, use, disclosure, and protection of health-related and other personal information. For instance, HIPAA imposes certain obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information and imposes notification obligations in the event of a breach of the privacy or security of individually identifiable health information on entities subject to HIPAA and their business associates that perform certain activities that involve the use or disclosure of protected health information on their behalf. Certain of these laws and regulations are described in greater detail in the section below under "Business — Government Regulation — Healthcare Privacy Laws." Failure to comply with applicable data protection laws and regulations could result in government enforcement actions and create liability for us, which could include civil and/or criminal penalties, as well as private litigation and/or adverse publicity that could negatively affect our operating results and business.

Our business and operations would suffer in the event of computer system failures, cyberattacks or a deficiency in our cybersecurity.

Despite the implementation of security measures, our internal computer systems and those of our contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures, cyberattacks or cyber-intrusions over the Internet, attachments to emails, persons inside our organization, or persons with access to systems inside our organization. The risk of a security breach or disruption, particularly through cyber-attacks or cyber intrusion, including by computer hackers, foreign governments, and cyber terrorists, has generally increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased. Such an event could cause interruption of our operations. For example, the loss of data from completed or ongoing clinical trials for our product candidates could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach were to result in a loss of or damage to our data, or inappropriate disclosure of confidential or proprietary information, we could incur material legal claims and liability and damage to our reputation and the development and commercialization of our product candidates could be delayed.

We are subject to risks inherent in foreign operations.

We currently operate portions of our business through our foreign subsidiaries, including through our Norwegian subsidiary, OptiNose AS, which owns all of our intellectual property and conducts development activities, and our United Kingdom subsidiary OptiNose UK Ltd., which is party to manufacturing and supply arrangements with some of our vendors and assists on some internal development for our EDS technology. We have committed, and intend to continue to commit, resources to our international operations. We are subject to a number of risks associated with our international business operations and activities that may increase liability, costs, and require significant management attention. These risks include:

- compliance with the laws of the United States, the United Kingdom, Norway, and other countries that apply to our international operations, including import and export legislation;
- compliance with foreign data protection laws and regulations in the United Kingdom, Norway and other countries that apply to our international operations;
- the complexities and expenses of administering a business abroad;

- complications in compliance with, and unexpected changes in, tariffs, trade barriers, price and exchange controls and other foreign regulatory requirements;
- instability in economic or political conditions, including inflation, recession and actual or anticipated military conflicts, social upheaval or political uncertainty;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad;
- uncertainties of laws and enforcement relating to the protection of intellectual property or secured technology;
- litigation in foreign court systems;
- language barriers;
- changes in tax laws and regulations in the jurisdictions in which we operate;
- compliance with tax, employment, immigration and labor laws, regulations and restrictions for employees living or traveling abroad;
- difficulties staffing and managing foreign operations; and
- workforce uncertainty in countries where labor unrest is more common than in the United States;

There can be no assurance that the policies and procedures we implement to address or mitigate these risks will be successful, that our personnel will comply with them or that we will not experience these factors in the future or that they will not have a material adverse effect on our business, results of operations and financial condition.

Our corporate structure and foreign operations may have adverse tax consequences and expose us to additional tax liabilities.

All of our intellectual property, including the rights to XHANCE and the rights under the AVP-825 License Agreement, are owned by OptiNose AS, our Norwegian subsidiary. In addition, as we plan for the commercial launch of XHANCE we anticipate that certain commercial functions may be conducted by OptiNose UK Ltd., our United Kingdom subsidiary, or any other current or potential future foreign subsidiary.

We operate pursuant to written intercompany service and related agreements, or transfer pricing agreements. These transfer pricing agreements establish transfer prices for intellectual property licenses production, marketing, management, technology development and other services performed by our group companies for other group companies. Transfer prices are prices that one company in a group of related companies charge to another member of the group for goods, services or the use of property. If two or more affiliated companies are located in different countries, the tax laws or regulations of each country generally will require that transfer prices be consistent with those between unrelated companies dealing at arm's length. Our transfer pricing arrangements are not binding on applicable tax authorities, and, if tax authorities in any country were successful in challenging our transfer prices as not reflecting arm's length transactions, they could require us to adjust our transfer prices and thereby reallocate our income to reflect those revised transfer prices. A reallocation of taxable income from a lower tax jurisdiction to a higher tax jurisdiction would result in a higher tax liability to us. In addition, if the country from which the income is reallocated does not agree with the reallocation, both countries could tax the same income, resulting in double taxation.

If we generate sales of XHANCE in the United States or otherwise generate any other sales or revenues, a portion of the income we generate may be allocated to one or more of our current or future foreign subsidiaries and, under current U.S. law, repatriation of any cash from our foreign subsidiaries to the United States may trigger significant adverse tax consequences. If we generate cash through our foreign operations or if the cash generated by our U.S. operations is not sufficient to fund our U.S. operations, we may face challenges applying any such cash held by our foreign subsidiaries to support the growth of our U.S. operations and any strategic opportunities in the United States. If we are forced to repatriate any

foreign-held cash, we could incur a significant tax charge, and our business, operating results or financial condition could be adversely impacted.

Income earned by our foreign subsidiaries may give rise to United States corporate income tax, even if there are no distributions to the United States, to the extent that our foreign subsidiaries generate income that is subject to Subpart F of the U.S. Internal Revenue Code, or Subpart F. Subpart F income includes, for example, certain "passive" income, certain income from intercompany transactions involving our foreign subsidiaries and certain income of any foreign subsidiary which makes an "investment in U.S. property," within the meaning of Subpart F, such as holding the stock in, or making a loan to, a U.S. corporation. Any income taxable under Subpart F is currently taxable in the United States at federal corporate income tax rates of up to 35.0%, even if it is not distributed to us. We have not treated any of our foreign subsidiaries' income as being Subpart F income pursuant to available exemptions for which we believe we qualify. We may, however, be required to do so and pay taxes under Subpart F on the prior and future income of our foreign subsidiaries if we do not qualify for an available exemption.

We may be exposed to liabilities under the U.S. Foreign Corrupt Practices Act and other U.S. and foreign anti-corruption anti-money laundering, export control, sanctions, and other trade laws and regulations, and any determination that we violated these laws could have a material adverse effect on our business.

We are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Control. We are also subject to the U.S. Foreign Corrupt Practices Act of 1977, as amended, or FCPA, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, the United Kingdom Bribery Act 2010, the Proceeds of Crime Act 2002, and possibly other anti-bribery and anti-money laundering laws in countries outside of the United States in which we conduct our activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees and third-party intermediaries from authorizing, promising, offering, providing, soliciting, or accepting, directly or indirectly, improper payments or benefits to or from any person whether in the public or private sector. As we commercialize XHANCE and any other product candidates that we may develop, we may engage with third-party manufacturers and collaborators who operate abroad and are required to obtain certain necessary permits, licenses and other regulatory approvals with respect to our business. Our activities abroad create the risk of unauthorized payments or offers of payments by employees, consultants, sales agents or distributors, even though they may not always be subject to our control. It is our policy to implement safeguards to discourage these practices by our employees, consultants, sales agents and distributors. However, our existing safeguards and any future improvements may prove to be less than effective, and the employees, consultants, sales agents, or distributors of our company may engage in conduct for which we might be held responsible, even if we do not explicitly authorize such activities.

Noncompliance with anti-corruption, anti-money laundering, export control, sanctions, and other trade laws could subject us to whistleblower complaints, investigations, sanctions, settlements, prosecution, other enforcement actions, disgorgement of profits, significant fines, damages, other civil and criminal penalties or injunctions, suspension and/or debarment from contracting with certain persons, the loss of export privileges, reputational harm, adverse media coverage and other collateral consequences. If any subpoenas or investigations are launched, or governmental or other sanctions are imposed, or if we do not prevail in any possible civil or criminal litigation, our business, results of operations and financial condition could be materially harmed. Responding to any action will likely result in a materially significant diversion of management's attention and resources and significant defense and compliance costs and other professional fees. In addition, the U.S. government may seek to hold us liable for successor liability FCPA violations committed by companies in which we invest or that we acquire. As a general matter, enforcement actions and sanctions could harm our business, results of operations, and financial condition.

Risks Related to Our Intellectual Property

If we are unable to protect our intellectual property rights or if our intellectual property rights are inadequate to protect our technology, XHANCE or our other product candidates, our competitors could develop and commercialize technology similar to ours, and our competitive position could be harmed.

Our commercial success will depend in large part on our ability to obtain and maintain patent and other intellectual property protection in the United States and other countries with respect to our proprietary technology and products. We rely on trade secret, patent, copyright and trademark laws, and confidentiality and other agreements with employees and third parties, all of which offer only limited protection. Our strategy is to seek patent protection for XHANCE, our other product candidates and their compositions, their methods of use and processes for their manufacture, and any other aspects of inventions that are commercially important to the development of our business.

The patent prosecution process is expensive and time-consuming, and we and any future licensors and licensees may not be able to apply for or prosecute patents on certain aspects of our product candidates or delivery technologies at a reasonable cost, in a timely fashion, or at all. We may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the rights to patents licensed to third parties. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. It is also possible that we or any future licensors or licensees, will fail to identify patentable aspects of inventions made in the course of development and commercialization activities before it is too late to obtain patent protection on them. Therefore, our patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. It is possible that defects of form in the preparation or filing of our patents or patent applications may exist, or may arise in the future, such as with respect to proper priority claims, inventorship, claim scope or patent term adjustments. If any future licensors or licensees, are not fully cooperative or disagree with us as to the prosecution, maintenance, or enforcement of any patent rights, such patent rights could be compromised and we might not be able to prevent third parties from making, using, and selling competing products. If there are material defects in the form or preparation of our patents or patent applications, such patents or applications may be invalid or unenforceable. Moreover, our competitors may independently develop equivalent knowledge, methods, and know-how. Any of these outcomes could impair our ability to prevent competition from third parties, which may have an adverse impact on our business, financial condition, and operating results.

The patent positions of pharmaceutical companies generally are highly uncertain, involve complex legal and factual questions and have in recent years been the subject of much litigation. As a result, the issuance, scope, validity, enforceability and commercial value of any patents that issue, are highly uncertain. The steps we have taken to protect our proprietary rights may not be adequate to preclude misappropriation of our proprietary information or infringement of our intellectual property rights, both inside and outside the United States. Further, the examination process may require us to narrow the claims of pending patent applications, which may limit the scope of patent protection that may be obtained if these applications issue. The rights that may be granted under future issued patents may not provide us with the proprietary protection or competitive advantages we are seeking. If we are unable to obtain and maintain patent protection for our technology and products, or if the scope of the patent protection obtained is not sufficient, our competitors could develop and commercialize technology and products similar or superior to ours, and our ability to successfully commercialize our technology and products may be impaired.

As of June 13, 2017, we owned a total of 43 U.S. patents and 35 pending U.S. patent applications. These U.S. patents will expire between 2020 and 2030. With respect to these patent rights, we do not know whether any of our patent applications will result in issued patents or, if any of our patent applications do issue, whether such patents will protect our technology and drugs, in whole or in part, or whether such patents will effectively prevent others from commercializing competitive technologies and products. There is no guarantee that any of our issued or granted patents will not later be found invalid or unenforceable.

The laws of foreign countries may not protect our rights to the same extent as the laws of the United States or vice versa. For example, European patent law restricts the patentability of methods of treatment of the human body more than United States law does. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing or in some cases not at all, until they are issued as a patent. Therefore, we cannot be certain that we were the first to make the inventions claimed in our pending patent applications, that we were the first to file for patent protection of such inventions, or that we have found all of the potentially relevant prior art relating to our patents and patent applications that could invalidate one or more of our patents or prevent one or more of our patent applications from issuing. Even if patents do successfully issue and even if such patents cover our product candidates, third parties may initiate oppositions, interferences, re-examinations, post-grant reviews, inter partes reviews, nullification or derivation actions in court or before patent offices or similar proceedings challenging the validity, enforceability, or scope of such patents, which may result in the patent claims being narrowed or invalidated. Furthermore, even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property, provide exclusivity for our product candidates, or prevent others from designing around our claims. Any of these outcomes could impair our ability to prevent competition from third parties.

Furthermore, the issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and our owned and licensed patents may be challenged in the courts or patent offices in the United States and abroad. Such challenges may result in loss of exclusivity or freedom to operate or in patent claims being narrowed, invalidated or held unenforceable, in whole or in part, which could limit our ability to stop others from using or commercializing similar or identical technology and drugs, or limit the duration of the patent protection of our technology and drugs. Given the amount of time required for the development, testing and regulatory review of new drug candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing drugs similar or identical to ours.

We may become involved in lawsuits to protect or enforce our patents or the patents of our licensors, which could be expensive, time consuming and unsuccessful.

Competitors may infringe our patents or the patents of any party from whom we may license patents from in the future. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. In a patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, for example, lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the U.S. Patent and Trademark Office, or USPTO, or made a misleading statement, during prosecution. The outcome following legal assertions of invalidity and unenforceability during patent litigation is unpredictable. A court may decide that a patent of ours or of any of our future licensors is not valid or is unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. In addition, to the extent that we have to file patent litigation in a federal court against a U.S. patent holder, we would be required to initiate the proceeding in the state of incorporation or residency of such entity. With respect to the validity question, for example, we cannot be certain that no invalidating prior art exists. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated, found unenforceable, or interpreted narrowly, and it could put our patent applications at risk of not issuing. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. If a defendant were to prevail on a legal assertion of invalidity or unenforceability, we would lose at least

part, and perhaps all, of the patent protection on one or more of our products or certain aspects of our EDS technology. Such a loss of patent protection could compromise our ability to pursue our business strategy.

Interference proceedings brought by the USPTO may be necessary to determine the priority of inventions with respect to our patents and patent applications or those of our collaborators or licensors. An unfavorable outcome could require us to cease using the technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if a prevailing party does not offer us a license on terms that are acceptable to us. Litigation or interference proceedings may fail and, even if successful, may result in substantial costs and distraction of our management and other employees. We may not be able to prevent, alone or with any of our future licensors, misappropriation of our proprietary rights, particularly in countries where the laws may not protect those rights as fully as in the United States. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock.

Moreover, we may be subject to a third-party pre-issuance submission of prior art to the USPTO or other foreign patent offices, or become involved in opposition, derivation, reexamination, inter partes review, post-grant review or interference proceedings challenging our patent rights or the patent rights of others. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate, our patent rights, allow third parties to commercialize our technology or drugs and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize drugs without infringing third-party patent rights. In addition, if the breadth or strength of protection provided by our patents and patent applications is threatened, it could dissuade companies from collaborating with us to license, develop, or commercialize current or future product candidates.

We may not be able to protect our intellectual property rights throughout the world.

Filing, prosecuting and defending patents on XHANCE, our other product candidates and our EDS technology throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States may be less extensive than those in the United States. In addition, the laws and practices of some foreign countries do not protect intellectual property rights, especially those relating to life sciences, to the same extent as federal and state laws in the United States. For example, novel formulations of existing drugs and manufacturing processes may not be patentable in certain jurisdictions, and the requirements for patentability may differ in certain countries, particularly developing countries. Also, some foreign countries, including European Union countries, India, Japan and China, have compulsory licensing laws under which a patent owner may be compelled under certain circumstances to grant licenses to third parties. Consequently, we may have limited remedies if patents are infringed or if we are compelled to grant a license to a third party, and we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions into or within the United States or other jurisdictions. This could limit our potential revenue opportunities. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products, and may export otherwise infringing products to territories where we have patent protection, but where enforcement is not as strong as that in the United States. These products may compete with our products in jurisdictions where we do not have any issued patents and our patent claims or other intellectual property rights may not be effective or sufficient to prevent them from competing with us in these jurisdictions. Accordingly, our efforts to enforce intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from our intellectual property. We may not prevail in any lawsuits that we initiate in these foreign countries and the damages or other remedies awarded, if any, may not be commercially meaningful.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and applications are required to be paid to the USPTO and various governmental patent agencies outside of the United States in several stages over the lifetime of the patents and applications. The USPTO and various non-U.S. governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process and after a patent has issued. There are situations in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction.

Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, the outcome of which could be uncertain and could harm our business.

Our commercial success depends upon our ability to develop, manufacture, market and sell XHANCE and our other product candidates and use our proprietary technologies without infringing the proprietary rights of third parties. While our product candidates are in preclinical studies and clinical trials, we believe that the use of our product candidates in these preclinical studies and clinical trials falls within the scope of the exemptions provided by 35 U.S.C. Section 271(e) in the United States, which exempts from patent infringement liability activities reasonably related to the development and submission of information to the FDA. As XHANCE and our other product candidates progress toward commercialization, the possibility of a patent infringement claim against us increases. For instance, our use of the Section 505(b)(2) regulatory pathway for the follow-on indication of chronic sinusitis or any of our other product candidates will require us to provide a Paragraph IV certification to the NDA and patent holders of the RLD pursuant to the Hatch-Waxman Act if the RLD is covered by Orange Book-listed patents. If the NDA or patent holder files a patent infringement lawsuit against us within 45 days of its receipt of notice of our certification, the FDA is prevented from approving our Section 505(b)(2) NDA until the earliest of 30 months, expiration of the patents, settlement of the lawsuit or a court decision in the infringement case that is favorable to us. Accordingly, we may invest significant time and expense in the development of our product candidates only to be subject to significant delay and expensive and time-consuming patent litigation before our product candidates may be commercialized. There can be no assurance that our product candidates do not infringe other parties' patents or other proprietary rights and competitors or other parties may assert that we infringe their proprietary rights in any event.

There is considerable intellectual property litigation in the biotechnology and pharmaceutical industries. We may become party to, or threatened with, future adversarial proceedings or litigation regarding intellectual property rights with respect to our product candidates, including interference or derivation proceedings before the USPTO. Numerous U.S. and foreign issued patents and pending patent applications owned by third parties exist in the fields in which we are developing our drug candidates. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future.

If we are found to infringe a third party's intellectual property rights, we could be required to obtain a license from such third party to continue commercializing our product candidates. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if a license can be obtained on acceptable terms, the rights may be non-exclusive, which could give our competitors access to the same technology or intellectual property rights licensed to us. If we fail to obtain a required license, we may be unable to effectively market product candidates based on our technology, which could limit our ability to generate revenue or achieve profitability and possibly prevent us from generating revenue sufficient to sustain our operations. Alternatively, we may need to redesign our infringing products, which may be impossible or require substantial time and monetary expenditure. Under certain circumstances, we could be forced, including by court order, to cease commercializing our product candidates. In addition, in any such proceeding or litigation, we could be found liable for substantial monetary damages, potentially

including treble damages and attorneys' fees, if we are found to have willfully infringed. A finding of infringement could prevent us from commercializing our product candidates or force us to cease some of our business operations, which could harm our business. Any claims by third parties that we have misappropriated their confidential information or trade secrets could have a similar negative impact on our business.

The cost to us in defending or initiating any litigation or other proceeding relating to patent or other proprietary rights, even if resolved in our favor, could be substantial, and litigation would divert our management's attention. Some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could compromise our commercialization efforts, delay our research and development efforts and limit our ability to continue our operations. There could also be public announcements of the results of the hearing, motions, or other interim proceedings or developments. If securities analysts or investors perceive those results to be negative, it could cause the price of shares of our common stock to decline.

Our competitors may be able to circumvent our patents by developing similar or alternative technologies or products in a non-infringing manner.

Our competitors may seek to market generic versions of any of our approved products by submitting ANDAs to the FDA or new products that use our approved products as the RLD, in each case where our competitors claim that our patents are invalid, unenforceable or not infringed. Alternatively, our competitors may seek approval to market their own products that are the same as, similar to or otherwise competitive with XHANCE and any future product candidates we may develop. In these circumstances, we may need to defend or assert our patents, by means including filing lawsuits alleging patent infringement requiring us to engage in complex, lengthy and costly litigation or other proceedings. In any of these types of proceedings, a court or government agency with jurisdiction may find our patents invalid, unenforceable or not infringed. We may also fail to identify patentable aspects of our research and development before it is too late to obtain patent protection. Even if we have valid and enforceable patents, these patents still may not provide protection against competing products or processes sufficient to achieve our business objectives.

Changes in either U.S. or foreign patent law or interpretation of such laws could diminish the value of patents in general, thereby impairing our ability to protect our products.

As is the case with other pharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the pharmaceutical industry involve both technological and legal complexity, and it therefore is costly, time-consuming and inherently uncertain. In addition, on September 16, 2011, the Leahy-Smith America Invents Act, or the AIA, was signed into law. The AIA includes a number of significant changes to U.S. patent law, including provisions that affect the way patent applications will be prosecuted and may also affect patent litigation.

An important change introduced by the AIA is that, as of March 16, 2013, the United States transitioned to a "first-to-file" system for deciding which party should be granted a patent when two or more patent applications are filed by different parties claiming the same invention. A third party that files a patent application in the USPTO after that date, but before us, could therefore be awarded a patent covering an invention of ours even if we had made the invention before it was made by the third party. This will require us to be cognizant going forward of the time from invention to filing of a patent application.

Among some of the other changes introduced by the AIA are changes that limit where a patentee may file a patent infringement suit and providing opportunities for third parties to challenge any issued patent in the USPTO. This applies to all of our U.S. patents, even those issued before March 16, 2013. Because of a lower evidentiary standard necessary to invalidate a patent claim in USPTO proceedings compared to the evidentiary standard in United States federal court, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would

be insufficient to invalidate the claim if first presented in a district court action. Accordingly, a third party may attempt to use the USPTO procedures to invalidate our patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action.

Depending on decisions by the U.S. Congress, the federal courts, the USPTO, or similar authorities in foreign jurisdictions, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

We may be subject to claims asserting that our employees, consultants, independent contractors and advisors have wrongfully used or disclosed confidential information and/or alleged trade secrets of their current or former employers or claims asserting ownership of what we regard as our own intellectual property.

Although we try to ensure that our employees, consultants, independent contractors and advisors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that these individuals or we have inadvertently or otherwise used or disclosed confidential information and/or intellectual property, including trade secrets or other proprietary information, of the companies that any such individual currently or formerly worked for or provided services to. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to our business.

In addition, while we require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property.

Intellectual property rights do not prevent all potential threats to competitive advantages we may have.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations, and intellectual property rights may not adequately protect our business or permit us to maintain our competitive advantage.

The following examples are illustrative:

- Others may be able to make drug and device components that are the same as or similar to XHANCE and our other product candidates but that are not covered by the claims of the patents that we own or have exclusively licensed;
- We or any of our licensors or collaborators might not have been the first to make the inventions covered by the issued patent or pending patent application that we own or have exclusively licensed;
- We or any of our licensors or collaborators might not have been the first to file patent applications covering certain of our inventions;
- Others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our intellectual property rights;
- The prosecution of our pending patent applications may not result in granted patents;
- Granted patents that we own or have licensed may not cover our products or may be held not infringed, invalid or unenforceable, as a result of legal challenges by our competitors;

- With respect to granted patents that we own or have licensed, especially patents that we either acquire or in-license, if certain information was withheld from or misrepresented to the patent examiner, such patents might be held to be unenforceable;
- Patent protection on our product candidates may expire before we are able to develop and commercialize the product, or before we are able to recover our investment in the product;
- Our competitors might conduct research and development activities in the United States and other countries that provide a safe harbor from patent infringement claims for such activities, as well as in countries in which we do not have patent rights, and may then use the information learned from such activities to develop competitive products for sale in markets where we intend to market our product candidates;
- We may not develop additional proprietary technologies that are patentable;
- The patents of others may have an adverse effect on our business; and
- We may choose not to file a patent application for certain technologies, trade secrets or know-how, and a third party may subsequently file a patent covering such intellectual property.

Should any of these events occur, they could significantly harm our business, financial condition, results of operations and prospects.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

In addition to seeking patent protection for certain aspects of our product candidates and delivery technologies, we also consider trade secrets, including confidential and unpatented know-how important to the maintenance of our competitive position. We protect trade secrets and confidential and unpatented know-how, in part, by customarily entering into non-disclosure and confidentiality agreements with parties who have access to such knowledge, such as our employees, outside scientific and commercial collaborators, CROs, CMOs, consultants, advisors and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants that obligate them to maintain confidentiality and assign their inventions to us. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. In addition, our trade secrets may otherwise become known, including through a potential cybersecurity breach, or may be independently developed by competitors.

Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts in the United States and certain foreign jurisdictions are less willing or unwilling to protect trade secrets. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent them from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor, our competitive position would be harmed.

If our trademarks are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected.

We expect to rely on trademarks as one means to distinguish any of our product candidates that are approved for marketing from the products of our competitors. OPTINOSE®, XHANCE™ and Breath Powered® are trademarks or registered trademarks of ours in the United States. Our trademarks may be challenged, infringed, circumvented or declared generic or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks or may be forced to stop using these names, which we need for name recognition by potential partners or customers in our markets of interest. If we are unable to establish name recognition based on our trademarks, we may not be able to compete effectively.

Risks Related to this Offering, Ownership of Our Common Stock and Our Status as a Public Company

There is no existing market for our common stock, and we do not know if one will develop. Even if a market does develop, the stock prices in the market may not exceed the offering price.

Prior to this offering there has been no market for shares of our common stock. Although we have applied to list our common stock on The NASDAQ Global Market, an active trading market for our shares may never develop or be sustained following this offering. The initial public offering price for our common stock will be determined through negotiations with the underwriters, and the negotiated price may not be indicative of the market price of our common stock after this offering. The market value of our common stock may decrease from the initial public offering price. As a result of these and other factors, you may be unable to resell your shares of our common stock at or above the initial public offering price. The lack of an active market may impair your ability to sell your shares at the time you wish to sell them or at a price that you consider reasonable. The lack of an active market may also reduce the fair market value of your shares. Further, an inactive market may also impair our ability to raise capital by selling shares of our common stock and may impair our ability to enter into strategic collaborations or acquire companies or products by using our shares of common stock as consideration.

The price of our common stock may be volatile and you may lose all or part of your investment.

The market price of our common stock following this offering is likely to be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control. In addition to the factors discussed in this "Risk Factors" section and elsewhere in this prospectus, these factors include:

- our ability to successfully commercialize XHANCE;
- any delay in our regulatory approval or filings for XHANCE for a follow-on indication for the treatment of chronic sinusitis or any other product candidate we may develop, and any adverse development or perceived adverse development with respect to the applicable regulatory authority's review of such filings, including without limitation the FDA's issuance of a "refusal to file" letter, a request for additional information, or a CRL;
- the success of competitive products or technologies;
- adverse regulatory actions with respect to our product candidates, including the failure to receive regulatory approval, or our competitors' products or product candidates;
- actual or anticipated changes in our growth rate relative to our competitors;
- announcements by us or our competitors of significant acquisitions or divestitures, strategic collaborations, joint ventures, collaborations or capital commitments;
- the commencement, enrollment or results of planned clinical trials of our product candidates or any future clinical trials we may conduct, or any changes generally in the development status of our product candidates or those of our competitors;
- regulatory or legal developments in the United States and other countries;
- the outcome of any investigations or regulatory scrutiny of our operations or litigation that may be brought against us;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our product candidates or clinical development programs;
- actual or anticipated variations in our quarterly operating results;
- the number and characteristics of our efforts to in-license or acquire additional product candidates or products;
- introduction of new products or services by us or our competitors;

- failure to meet the estimates and projections of the investment community or financial guidance that we may otherwise provide to the public;
- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts;
- actual or anticipated changes in estimates as to development timelines that we may provide to the public;
- variations in our financial results or those of companies that are perceived to be similar to us;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- share price and volume fluctuations attributable to inconsistent trading volume levels of our shares;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us, our insiders or our other stockholders;
- significant lawsuits, including patent or stockholder litigation;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- general political, economic, industry and market conditions;
- investors' general perception of our company and our business;
- publication of research reports about us, our competitors or our industry, or positive or negative recommendations or withdrawal of research coverage by securities or industry analysts; and
- other events or factors, many of which are beyond our control.

In addition, the stock market in general, and pharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance. The realization of any of the above risks or any of a broad range of other risks stated above could have a material adverse effect on the market price of our common stock.

A significant portion of our total outstanding shares are restricted from immediate resale but may be sold into the market in the near future. Sales of a substantial number of shares of our common stock in the public market could cause our stock price to fall, even if our business is doing well.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. If our stockholders sell, or the market perceives that the holders of a large number of shares intend to sell, substantial amounts of our common stock in the public market following this offering, the market price of our common stock could decline significantly.

After this offering, we will have outstanding shares of common stock, based on the number of shares outstanding as of , 2017, but assuming no exercise of outstanding options or warrants. This includes the shares that we are selling in this offering, which may be resold in the public market immediately without restriction, unless purchased by our affiliates or existing stockholders. The remaining shares will be restricted as a result of contractual lock-up agreements with the underwriters for 180 days after the date of this prospectus, as described in the "Shares Eligible for Future Sale" section of this prospectus. The representatives of the underwriters may, in their sole discretion and at any time or from time to time before the termination of the 180-day period, release all or any portion of the securities subject to lock-up agreements. In addition, pursuant to the Second Amended and Restated Shareholders' Agreement, certain of our existing stockholders will be restricted from selling securities for a 180-day period following the effective date of the registration statement of which this prospectus is a part. Moreover, after this offering, holders of an aggregate of shares of our common stock will have rights, subject to specified conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. If we were to register

the resale of these shares, they could be freely sold in the public market. If these additional shares are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline.

We also intend to file one or more registration statements on Form S-8 promptly following the closing of this offering to register the issuance of approximately shares of common stock that we may issue under our equity compensation plans. Once we register these shares, they can be freely sold in the public market upon issuance, subject to volume limitations applicable to affiliates and the lock-up agreements described in the "Underwriting" section of this prospectus.

Future issuances of our common stock or rights to purchase common stock, including pursuant to our equity incentive plans, could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to fall.

We expect that significant additional capital will be needed in the future to continue our planned operations. To raise capital, we may sell substantial amounts of common stock or securities convertible into or exchangeable for common stock. These future issuances of common stock or common stock-related securities, together with the exercise of outstanding options, warrants and any additional shares issued in connection with acquisitions, if any, may result in material dilution to our investors. Such sales may also result in material dilution to our existing stockholders, and new investors could gain rights, preferences and privileges senior to those of holders of our common stock, including shares of common stock sold in this offering.

We will have broad discretion in the use of the net proceeds from this offering and may invest or spend the proceeds in ways with which you do not agree and in ways that may not increase the value of your investment.

We will have broad discretion in the application of the net proceeds from this offering, and you will be relying on the judgment of our management regarding the application of these proceeds. You may not agree with our decisions, and our management may not apply the net proceeds of this offering in ways that ultimately increase the value of your investment. We expect to use the net proceeds from this offering in the manner described in the "Use of Proceeds" section of this prospectus. Our failure to apply these net proceeds effectively could result in financial losses that could have a material adverse effect on our business, cause the price of our common stock to decline and delay the development and commercialization of our product candidates. Pending their use, we intend to invest the net proceeds from this offering in short-term, investment-grade, interest-bearing securities. These investments may not yield a favorable return to our stockholders. If we do not invest or apply the net proceeds from this offering in ways that enhance stockholder value, we may fail to achieve expected financial results and it could compromise our ability to develop and commercialize our product candidates, either of which could cause the price of our common stock to decline.

Our principal stockholders and management own substantially all of our stock prior to this offering and will continue to be able to exert significant control over matters subject to stockholder approval after the offering, which could prevent new investors from influencing significant corporate decisions.

Upon the closing of this offering, our executive officers, directors, beneficial owners of 5% or more of our capital stock and their respective affiliates will, in the aggregate, beneficially own approximately % of our outstanding common stock, including entities associated with Avista Capital Partners II, L.P., or Avista, our largest stockholder. In addition, Avista and TKWD Ventures LLC, or TKWD, will enter into a voting agreement effective upon the closing of this offering relating to the nomination of certain individuals to be elected as members of our board of directors. Upon the closing of this offering, we expect that Avista and TKWD and their respective affiliates will collectively hold as a group approximately % of our outstanding voting stock. As a result, these stockholders, acting together, would be able to significantly

influence the outcome of all matters requiring stockholder approval, including the election of directors, amendments of our organizational documents, or approval of any merger, sale of assets or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you may feel are in your best interest. The interests of this group of stockholders may not always coincide with your interests or the interests of other stockholders and they may act in a manner that advances their best interests and not necessarily those of other stockholders, including seeking a premium value for their common stock. For instance, under the terms of our fourth amended and restated certificate of incorporation, which will become effective immediately following the closing of this offering, neither Avista, TKWD nor any of their respective representatives on our board of directors are required to offer us any transaction opportunity of which they become aware, and they could take any such opportunity for themselves or offer it to other companies in which they have an investment, unless that opportunity is expressly offered to a person serving on our board of directors solely in his or her capacity as one of our directors. These actions might affect the prevailing market price for our common stock. In addition, because many of these stockholders purchased their shares at prices substantially below the price at which shares are being sold in this offering and have held their shares for a longer period, they may be more interested in selling our company to an acquiror than other investors, or they may want us to pursue strategies that deviate from the interests of other stockholders. Such concentration of ownership control may also:

- delay, defer or prevent a change in control;
- entrench our management and/or the board of directors; or
- impede a merger, consolidation, takeover or other business combination involving us that other stockholders may desire.

We may also take actions that our other stockholders do not view as beneficial, which may adversely affect our results of operations and financial condition and cause the value of your investment to decline.

Following this offering, we will be a "controlled company" within the meaning of NASDAQ listing rules and, as a result, we will qualify for, and intend to rely on, exemptions from certain corporate governance requirements. Our stockholders will not have the same protections afforded to stockholders of companies that do not rely on exemptions from corporate governance requirements.

Upon the closing of this offering, Avista and TKWD will collectively control approximately % of our outstanding common stock. As a result, we will be a "controlled company" within the meaning of the corporate governance standards of NASDAQ. Under these rules, a company of which more than 50% of the voting power is held by an individual, group or another company is a "controlled company" and may elect not to comply with certain corporate governance requirements, including requirements that:

- a majority of the board of directors consist of independent directors;
- the compensation of our officers be determined or recommended to the board of directors by a compensation committee that is comprised solely of independent directors; and
- director nominees be selected or recommended to the board of directors by a majority of independent directors or a nominating committee comprised solely of independent directors.

Upon the closing of this offering, we intend to utilize these exemptions. As a result, our nominating and corporate governance committee and our compensation committee will not consist entirely of independent directors. Accordingly, you will not have the same protections afforded to stockholders of companies that are subject to all of the corporate governance requirements of NASDAQ.

Avista is not subject to any contractual obligation to retain its interest, except that it has agreed, subject to certain exceptions, not to sell or otherwise dispose of any shares of our common stock or other capital stock or other securities exercisable or convertible therefor for a period of at least 180 days after the date of this prospectus without the prior written consent of the representatives of the underwriters in this offering. Pursuant to the Second Amended and Restated Shareholders' Agreement that will be in effect upon the closing of this offering, TKWD, along with certain of our other stockholders, will not sell any shares of our

common stock until the earlier of (i) ,201 and (ii) the completion of an underwritten secondary offering of our common stock in which Avista participates, whichever occurs sooner. Except for these restrictions, there can be no assurance as to the period of time during which Avista or TKWD will maintain their ownership of our common stock following the offering. As a result, there can be no assurance as to the period of time during which we will be able to avail ourselves of the controlled company exemptions.

Some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our fourth amended and restated certificate of incorporation and our amended and restated bylaws, each of which will become effective immediately following the closing of this offering, as well as provisions of Delaware law, could make it more difficult for a third party to acquire us or increase the cost of acquiring us, even if doing so would benefit our stockholders, or remove our current management. These include provisions that will:

- permit our board of directors to issue up to million shares of preferred stock, with any rights, preferences and privileges as it may designate, which issuance could result in the loss of voting control by other stockholders;
- provide that our board of directors will be classified into three classes with staggered, three-year terms and that, subject to the rights of Avista and TKWD to remove their respective director nominees with or without cause, directors may only be removed for cause by the affirmative vote of the holders of at least a majority of the voting power of outstanding shares of our capital stock;
- subject to any director nomination rights afforded Avista and TKWD, provide that all vacancies on our board of directors, including as a result of newly created directorships, may, except as otherwise required by law, be filled only by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- following the date that Avista and TKWD cease to hold a majority of the outstanding shares of our common stock, require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and not be taken by written consent;
- provide that, with the exception of director nominees submitted by Avista and TKWD pursuant to our Second Amended and Restated Shareholders' Agreement, stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide advance notice in writing, and also specify requirements as to the form and content of a stockholder's notice;
- require that the amendment of certain provisions of our certificate of incorporation relating to anti-takeover measures may only be approved by a vote of $66^{2}/_{3}\%$ of our outstanding common stock;
- not provide for cumulative voting rights, thereby allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election; and
- provide that special meetings of our stockholders may be called only by the chairman or vice chairman of our board of directors, our chief executive officer, a majority of our board of directors or, for so long as Avista and TKWD hold a controlling ownership interest in our common stock, by the holders of a majority of our outstanding common stock.

These provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, who are responsible for appointing the members of our management. Under our fourth amended and restated certificate of incorporation, we have elected not to be governed by Section 203 of the Delaware General Corporation Law until such time that Avista and TKWD collectively cease to own 10% or more of our capital stock. Our fourth amended and restated certificate of incorporation does, however, contain a provision that generally mirrors Section 203 of the Delaware General Corporation Law, except that it excludes Avista and

its affiliates from the definition of "interested stockholder." At such time that Avista and TKWD collectively cease to own 10% or more of our capital stock, we will be governed by the provisions of Section 203 of the Delaware General Corporation Law. These provisions may discourage, delay or prevent someone from acquiring us or merging with us whether or not it is desired by or beneficial to our stockholders. Under Section 203, a corporation may not, in general, engage in a business combination with any holder of 15% or more of its capital stock unless the holder has held the stock for three years or, among other things, prior to the time the stockholder has become an interested stockholder, the board of directors has approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder.

These provisions of our fourth amended and restated certificate of incorporation, our amended and restated bylaws and Delaware law could have the effect of discouraging potential acquisition proposals and delaying or preventing a change in control. They could also have the effect of discouraging others from making tender offers for our common stock, including transactions that may be in your best interests or provide an opportunity for our stockholders to receive a premium for their shares of our common stock. These provisions could also affect the price that some investors are willing to pay for our common stock.

Our certificate of incorporation also provides that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our fourth amended and restated certificate of incorporation that will become effective immediately following the closing of this offering provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders; any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our certificate of incorporation or our bylaws; or any action asserting a claim against us that is governed by the internal affairs doctrine. Our fourth amended and restated certificate of incorporation also provides that the United States District Court for the District of Delaware and any appellate courts thereof will be the exclusive forum for resolving any such complaint for which subject matter jurisdiction of such claim is vested exclusively in the federal courts of the United States of America. These choice of forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees. Alternatively, if a court were to find the choice of forum provisions contained in our certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions.

We may fail to qualify for continued listing on NASDAQ which could make it more difficult for investors to sell their shares.

We have applied to list our common stock on The NASDAQ Global Market. If approved, we will need to satisfy the continued listing requirements of The NASDAQ Stock Market, LLC, or NASDAQ, for inclusion on The NASDAQ Global Market to maintain such listing, including, among other things, the maintenance of a minimum bid price of $1.00 per share and stockholders' equity of at least $10.0 million. There can be no assurance that we will be able to maintain compliance with the continued listing requirements or that our common stock will not be delisted from NASDAQ in the future. If our common stock is delisted by NASDAQ, we could face significant material adverse consequences, including:

- a limited availability of market quotations for our securities;
- reduced liquidity with respect to our securities;

- a determination that our shares are a "penny stock," which will require brokers trading in our shares to adhere to more stringent rules, possibly resulting in a reduced level of trading activity in the secondary trading market for our shares;
- a limited amount of news and analyst coverage for our company; and
- a decreased ability to issue additional securities or obtain additional financing in the future.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our stock price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. Securities and industry analysts do not currently, and may never, publish research on our company. If no securities or industry analysts commence coverage of our company, the trading price for our stock would likely be negatively impacted. In the event securities or industry analysts initiate coverage, if one or more of the analysts who cover us downgrade our stock or publish inaccurate or unfavorable research about our business, our stock price would likely decline. If one or more of these analysts cease coverage of our company or fail to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

If you purchase our common stock in this offering, you will incur immediate and substantial dilution in the book value of your shares.

We expect that the initial public offering price will be substantially higher than the net tangible book value per share of our common stock. Investors purchasing common stock in this offering will pay a price per share that substantially exceeds the pro forma as adjusted book value (deficit) of our tangible assets after subtracting our liabilities. As a result, investors purchasing common stock in this offering will incur immediate dilution of $ per share, based upon an assumed initial public offering price of $ per share, the midpoint of the price range on the cover page of this prospectus. As a result of the dilution to investors purchasing shares in this offering, investors may receive significantly less than the purchase price paid in this offering, if anything, in the event of our liquidation. Further, investors purchasing common stock in this offering will have contributed approximately % of the total amount invested by stockholders since our inception, but will own, as a result of such investment, only approximately % of the shares of common stock outstanding immediately following giving effect to this offering. Furthermore, if the underwriters exercise their option to purchase additional shares or our previously issued options and warrants to acquire common stock at prices below the initial public offering price are exercised, you will experience further dilution. For a further description of the dilution that you will incur as a result of purchasing shares in this offering, see "Dilution."

Because we do not anticipate paying any cash dividends on our capital stock in the foreseeable future, capital appreciation, if any, will be your sole source of gain and you may never receive a return on your investment.

We have never declared or paid cash dividends on our capital stock, and you should not rely on an investment in our common stock to provide dividend income. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. In addition, the terms of any future debt agreements may preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock will be your sole source of gain for the foreseeable future.

We may be subject to securities litigation, which is expensive and could divert our management's attention.

As we operate in the pharmaceutical industry, we may be especially vulnerable to volatility in the market price of our common stock, especially to the extent that various factors affect the common stock of companies in our industry. In the past companies that have experienced volatility in the market price of

their stock have been subject to securities class action litigation. We may be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business, and could also require us to make substantial payments to satisfy judgments or to settle litigation.

We are an "emerging growth company" and intend to take advantage of reduced disclosure and governance requirements applicable to emerging growth companies, which could result in our common stock being less attractive to investors.

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, and we are eligible to and intend to take advantage of some of the exemptions from reporting requirements applicable to other public companies, but not to emerging growth companies, including, but not limited to, an exemption from the auditor attestation requirement of Section 404 of the Sarbanes-Oxley Act, reduced disclosure about executive compensation arrangements pursuant to the rules applicable to smaller reporting companies and no requirement to seek non-binding advisory votes on executive compensation or golden parachute arrangements. We will remain an emerging growth company until the earliest of (1) the beginning of the first fiscal year following the fifth anniversary of our initial public offering, or January 1, 2023, (2) the beginning of the first fiscal year after our annual gross revenue is $1.07 billion or more, (3) the date on which we have, during the previous three-year period, issued more than $1.0 billion in non-convertible debt securities and (4) the end of any fiscal year in which the market value of our common stock held by non-affiliates exceeded $700.0 million as of the end of the second quarter of that fiscal year.

In addition, Section 107 of the JOBS Act also provides that an emerging growth company can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933, as amended, for complying with new or revised accounting standards. An emerging growth company can therefore delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. However, we are choosing to "opt out" of such extended transition period and, as a result, we will comply with new or revised accounting standards on the relevant dates on which adoption of such standards is required for non-emerging growth companies. Section 107 of the JOBS Act provides that our decision to opt out of the extended transition period for complying with new or revised accounting standards is irrevocable.

We cannot predict if investors will find our common stock less attractive as a result of our taking advantage of these exemptions. If some investors find our common stock less attractive as a result of our choices, there may be a less active trading market for our common stock and our stock price may be more volatile. We may also be unable to raise additional capital as and when we need it.

If we fail to maintain an effective system of internal control over financial reporting, we may not be able to timely and accurately report our financial condition, results of operations or cash flows, which may adversely affect investor confidence in us and, as a result, the value of our common stock.

After the closing of this offering, we will be subject to the reporting requirements of the Securities Exchange Act of 1934, or the Exchange Act, as well as the Sarbanes-Oxley Act and the rules and regulations of the stock market on which our common stock is listed. The Sarbanes-Oxley Act requires, among other things, that we maintain effective internal control over financial reporting. Commencing with our fiscal year ending December 31, 2018, we will be required, under Section 404 of the Sarbanes-Oxley Act, to include in our Form 10-K filing for that year a report by management on, among other things, the effectiveness of our internal control over financial reporting. This assessment will need to include disclosure of any material weaknesses identified by our management in our internal control over financial reporting. A material weakness is a control deficiency, or combination of control deficiencies, in internal control over financial reporting that results in more than a reasonable possibility that a material misstatement of annual or interim consolidated financial statements will not be prevented or detected on a timely basis. Section 404 of the Sarbanes-Oxley Act also generally requires an attestation from our independent

registered public accounting firm on the effectiveness of our internal control over financial reporting. However, for as long as we remain an emerging growth company as defined in the JOBS Act, we intend to take advantage of an exemption from the independent registered public accounting firm attestation requirement.

Our compliance with Section 404's requirement to furnish a report by management will require that we incur substantial additional professional fees and internal costs to expand our accounting and finance functions and that we expend significant management efforts. Prior to this offering, we have never been required to test our internal control within a specified period, and, as a result, we may experience difficulty in meeting these reporting requirements in a timely manner. We currently do not have an internal audit function, and we will need to hire additional accounting and financial staff with appropriate public company experience and technical accounting knowledge, and compile the system and process documentation necessary to perform the evaluation needed to comply with the applicable provisions of Section 404. We may not be able to complete our evaluation, testing and any required remediation in a timely fashion, which could potentially subject us to sanctions or investigations by the Securities and Exchange Commission, or the SEC, or other regulatory authorities.

We may identify weaknesses in our system of internal financial and accounting controls and procedures that could result in a material misstatement of our consolidated financial statements. During the evaluation and testing process, if we identify one or more material weaknesses in our internal control over financial reporting, we will be unable to assert that our internal control over financial reporting is effective. We cannot assure you that there will not be material weaknesses or significant deficiencies in our internal control over financial reporting in the future. Our internal control over financial reporting will not prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud will be detected.

Any failure to maintain internal control over financial reporting could severely inhibit our ability to timely and accurately report our financial condition, results of operations or cash flows. If we are unable to conclude that our internal control over financial reporting is effective, or if our independent registered public accounting firm determines we have a material weakness in our internal control over financial reporting once that firm begins the testing procedures over internal controls, we could lose investor confidence in the accuracy and completeness of our financial reports, the market price of our common stock could decline, and we could be subject to sanctions or investigations by NASDAQ, the SEC or other regulatory authorities. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

Our disclosure controls and procedures may not prevent or detect all errors or acts of fraud.

Upon consummation of this offering, we will become subject to the periodic reporting requirements of the Exchange Act. Our disclosure controls and procedures are designed to reasonably assure that information required to be disclosed by us in reports we file or submit under the Exchange Act is accumulated and communicated to management, recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC. We believe that any disclosure controls and procedures, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

These inherent limitations reflect the reality that judgments can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud

may occur and not be detected. If that were to happen, the market price of our stock could decline and we could be subject to sanctions or investigations by NASDAQ, the SEC or other regulatory authorities.

We will incur increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives.

Prior to the consummation of this offering, we have not been subject to public company reporting obligations. We will incur significant additional legal, accounting, administrative and other costs and expenses as a public company. Compliance with the Sarbanes-Oxley Act, the Dodd-Frank Act of 2010, the Exchange Act, as well as rules of the SEC and NASDAQ, for example, will result in significant initial costs to us as well as ongoing increases in our legal, audit and financial compliance costs, particularly after we are no longer an "emerging growth company." In addition, changing laws, regulations and standards relating to corporate governance and public disclosure, including regulations implemented by NASDAQ and the SEC, may increase legal and financial compliance costs and make some activities more time-consuming. These laws, regulations and standards are subject to varying interpretations and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. We intend to invest resources to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management's time and attention from revenue-generating activities to compliance activities. Any changes that we make to comply with these obligations may not be sufficient to allow us to satisfy our obligations as a public company on a timely basis, or at all.

The Exchange Act requires, among other things, that we file annual, quarterly and current reports with respect to our business and financial condition. Our board of directors, management and other personnel need to devote a substantial amount of time to these compliance initiatives. Moreover, failure to comply with these rules and regulations might make it more difficult and more expensive for us to obtain director and officer liability insurance, or we might be forced to accept reduced policy limits and coverage or incur substantially higher costs to maintain the same or similar coverage.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus includes forward-looking statements. The forward-looking statements are contained principally in the sections entitled "Prospectus Summary," "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business." These statements relate to future events or to our future financial performance and involve known and unknown risks, uncertainties and other important factors which may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. Forward-looking statements include, but are not limited to, statements about:

- our plans to commercialize XHANCE and our product candidates;
- the size and growth potential of the markets for XHANCE and our product candidates, and our ability to service those markets;
- our ability to develop sales and marketing capabilities, whether alone or with potential future collaborators;
- the rate and degree of market acceptance of XHANCE and our product candidates;
- our ability to obtain and maintain regulatory approval of XHANCE and our product candidates and any related restrictions, limitations, and/or warnings in the label of XHANCE or an approved product candidate;
- our ability to attract collaborators with development, regulatory and commercialization expertise;
- the success, cost and timing of our product development activities, studies and clinical trials, including our plans to initiate additional clinical trials of XHANCE in pursuit of a follow-on indication for chronic sinusitis;
- our ability to obtain funding for our operations beyond this offering;
- regulatory developments in the United States and foreign countries;
- our ability to operate our business without infringing the intellectual property rights of others;
- the performance of our third-party suppliers, manufacturers and contract sales organizations;
- the success of competing products that are or become available;
- our expectations regarding our ability to obtain and adequately maintain sufficient intellectual property protection for XHANCE and our other product candidates and to avoid claims of infringement;
- the loss of key scientific or management personnel;
- our expectations regarding the period during which we qualify as an emerging growth company under the JOBS Act;
- our use of proceeds from this offering; and
- the accuracy of our estimates regarding expenses, future revenue, capital requirements and need for additional financing.

In some cases, you can identify these statements by terms such as "anticipate," "believe," "could," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "project," "should," "will," "would" or the negative of those terms, and similar expressions. These forward-looking statements reflect our management's beliefs and views with respect to future events and are based on estimates and assumptions as of the date of this prospectus and are subject to risks and uncertainties. We discuss many of these risks in greater detail under the heading "Risk Factors." Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. Given these uncertainties, you should not place undue reliance on these forward-looking statements. The Private Securities Litigation Reform Act of 1995 and Section 27A

of the Securities Act of 1933, as amended, or the Securities Act, do not protect any forward-looking statements that we make in connection with this offering. Any forward-looking statements that we make in this prospectus speak only as of the date of such statement, and we undertake no obligation to update such statements to reflect events or circumstances after the date of this prospectus or to reflect the occurrence of unanticipated events. Comparisons of results for current and any prior periods are not intended to express any future trends or indications of future performance, unless expressed as such, and should only be viewed as historical data.

You should read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in this prospectus by these cautionary statements.

Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future.

IMPLICATIONS OF BEING AN EMERGING GROWTH COMPANY

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. We will remain an emerging growth company until the earliest of:

- the beginning of the first fiscal year following the fifth anniversary of our initial public offering, or January 1, 2023;
- the beginning of the first fiscal year after our annual gross revenue is $1.07 billion or more;
- the date on which we have, during the previous three-year period, issued more than $1.0 billion in non-convertible debt securities; and
- the end of any fiscal year in which the market value of our common stock held by non-affiliates exceeded $700.0 million as of the end of the second quarter of that fiscal year.

For as long as we remain an "emerging growth company," we may take advantage of certain exemptions from various reporting requirements that are applicable to public companies that are not "emerging growth companies," including:

- presentation of only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure in this prospectus;
- not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act relating to the effectiveness of our internal control over financial reporting;
- reduced disclosure obligations regarding executive compensation and financial statements in our periodic reports, proxy statements and registration statements; and
- exemptions from the requirements of holding a nonbinding advisory vote to approve executive compensation and stockholder approval of any golden parachute payments not previously approved.

We will take advantage of these reporting exemptions until we are no longer an "emerging growth company." We may choose to take advantage of some but not all of these reduced burdens. For example, we have taken advantage of the reduced reporting requirements with respect to disclosure regarding our executive compensation arrangements, have presented only two years of audited financial statements and only two years of related "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure in this prospectus, and have taken advantage of the exemption from auditor attestation on the effectiveness of our internal control over financial reporting. To the extent that we take advantage of these reduced burdens, the information that we provide stockholders may be different than you might obtain from other public companies in which you hold equity interests.

The JOBS Act provides that an "emerging growth company" can take advantage of an extended transition period for complying with new or revised accounting standards. We have irrevocably elected not to avail ourselves of this exemption and, therefore, we are subject to the same new or revised accounting standards as other public companies that are not "emerging growth companies."

MARKET, INDUSTRY AND OTHER DATA

This prospectus contain estimates, projections and other information concerning our industry, our business and the prospective markets for XHANCE and our product candidates, including data regarding the estimated size of those markets, the perceptions and preferences of patients and physicians regarding certain therapies and other prescription, physician and patient data, as well as data regarding market research, estimates and forecasts prepared by our management. We obtained the industry, market and other data throughout this prospectus from our own internal estimates and research, as well as from industry publications and research, surveys and studies conducted by third parties on our behalf. We believe this data is accurate in all material respects as of the date of this prospectus.

Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances that are assumed in this information. In several cases, we do not expressly refer to the sources from which this data is derived.

USE OF PROCEEDS

We estimate that we will receive net proceeds of $ million, or $ million if the underwriters exercise their option to purchase additional shares in full, from the sale of the shares of common stock offered by us in this offering, based on an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) the net proceeds to us from this offering by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions.

Similarly, a 1.0 million share increase (decrease) in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) the net proceeds to us by $ million, based on an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting the estimated underwriting discounts and commissions.

We currently estimate that we will use the net proceeds of this offering, together with our existing cash and cash equivalents, as follows:

- approximately $ million to support the planned launch of XHANCE, including investment to establish and continue to build our commercial infrastructure, supply chain, marketing and sales functions;
- approximately $ million to fund research and development efforts for XHANCE, including the initiation of FDA-mandated pediatric studies and the clinical trials necessary to seek approval for a follow-on indication of XHANCE for the treatment of chronic sinusitis; and
- the remainder, if any, to fund working capital, research and development efforts and general corporate purposes, which may include the acquisition or licensing of products, product candidates, technologies, compounds, other assets or complementary businesses.

The expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. The amounts and timing of our actual expenditures depend on numerous factors, including the success of our commercialization efforts, the progress of our clinical development efforts for XHANCE for a follow-on indication for the treatment of chronic sinusitis and the progress of our preclinical and clinical development efforts with respect to our other product candidates. As a result, our management will have broad discretion in applying the net proceeds from this offering. An investor will not have the opportunity to evaluate the economic, financial or other information on which we base our decisions on how to use the net proceeds.

Although we may use a portion of the net proceeds from this offering for the acquisition or licensing, as the case may be, of products, product candidates, technologies, compounds, other assets or complementary businesses, we have no current understandings, agreements or commitments to do so. Pending these uses, we plan to invest the net proceeds from this offering in short- and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

Although it is difficult to predict future liquidity requirements, we believe that the net proceeds from this offering, together with our existing cash resources, will be sufficient to enable us to fund our operations through , including to support the planned launch of XHANCE. With respect to the additional research and development efforts for XHANCE, including the initiation of FDA-mandated pediatric studies and the clinical trials necessary to seek approval for a follow-on indication for the treatment of chronic sinusitis, we expect that we will require additional funds as these studies and trials progress, the exact

amounts of which will depend on the timing, design and outcome of the clinical trials and our cash position. We have based these estimates on assumptions that may prove to be incorrect, and we could use our available capital resources sooner than we currently expect. We may need to raise additional capital through public offerings and private placements of our equity securities, debt financings, strategic partnerships, alliances and licensing arrangements, or a combination thereof.

DIVIDEND POLICY

We have never paid or declared any cash dividends on our common stock, and we do not anticipate paying any cash dividends on our common stock in the foreseeable future. We currently intend to retain all available funds and any future earnings to support our operations and finance the growth and development of our business. Any future determination related to our dividend policy will be made at the discretion of our board of directors and will depend upon, among other factors, our results of operations, financial condition, capital requirements, contractual restrictions, business prospects and other factors our board of directors may deem relevant.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and our capitalization as of June 30, 2017 on:

- an actual basis;
- a pro forma basis, giving effect to:
  - the automatic conversion of all our outstanding convertible preferred stock into an aggregate of 8,680,566 shares of our common stock, which will occur upon the closing of this offering; and
  - the filing of our fourth amended and restated certificate of incorporation following the closing of this offering; and
- a pro forma as adjusted basis, giving effect to the pro forma adjustments set forth above and the sale by us of shares of our common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The pro forma and pro forma as adjusted information below is illustrative only, and our capitalization following the closing of this offering will depend on the actual initial public offering price and other terms of this offering determined at pricing. You should read this table together with our consolidated financial statements and the related notes appearing at the end of this prospectus, the sections entitled "Selected Consolidated Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" and other consolidated financial information appearing elsewhere in this prospectus.

	As of June 30, 2017		
(in thousands)	Actual	Pro Forma	Pro Forma As Adjusted[1]
Cash and cash equivalents	$ 58,887	$ 58,887	
Redeemable convertible preferred stock:			
Series A Preferred Stock, par value $0.001 per share; 285,480 shares authorized, 285,480 shares issued and outstanding, actual; 285,480 shares authorized, no shares issued or outstanding, pro forma; no shares authorized, issued or outstanding, pro forma as adjusted	5,381	—	
Series B-1 Preferred Stock, par value $0.001 per share; 35,680 shares authorized, 35,680 shares issued and outstanding, actual; 35,680 shares authorized, no shares issued or outstanding, pro forma; no shares authorized, issued or outstanding, pro forma as adjusted	673	—	
Series B-2 Preferred Stock, par value $0.001 per share; 782,600 authorized, 782,600 shares issued and outstanding, actual; 782,600 shares authorized, no shares issued or outstanding, pro forma; no shares authorized, issued or outstanding, pro forma as adjusted	14,760	—	
Series C Preferred Stock, par value $0.001 per share; 4,115,344 shares authorized, 4,115,344 shares issued and outstanding, actual; 4,115,344 shares authorized, no shares issued or outstanding, pro forma; no shares authorized, issued or outstanding, pro forma as adjusted	110,840	—	

(in thousands)	As of June 30, 2017 Actual	Pro Forma	Pro Forma As Adjusted[1]
Series C-1 Preferred Stock, par value $0.001 per share; 1,656,410 shares authorized, 1,656,410 shares issued and outstanding, actual; 1,656,410 shares authorized, no shares issued or outstanding, pro forma; no shares authorized, issued or outstanding, pro forma as adjusted	43,517	—	
Series C-2 Preferred Stock, par value $0.001 per share; 687,474 shares authorized, 687,474 shares issued and outstanding, actual; 687,474 shares authorized, no shares issued or outstanding, pro forma; no shares authorized, issued or outstanding, pro forma as adjusted	19,951	—	
Series D Preferred Stock, par value $0.001 per share; 1,369,863 shares authorized, 1,117,578 shares issued and outstanding, actual; 1,369,863 shares authorized, no shares issued or outstanding, pro forma; no shares authorized, issued or outstanding, pro forma as adjusted	37,296	—	
Total redeemable convertible preferred stock	232,418	—	
Stockholders' (deficit) equity:			
Common stock, par value $0.001 per share; 13,067,149 shares authorized, 1,408,540 shares issued and outstanding, actual; shares authorized, 10,089,106 shares issued and outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted	1	10	
Preferred stock, par value $0.001 per share; no shares authorized, issued or outstanding, actual; shares authorized, no shares issued and outstanding, pro forma and pro forma as adjusted	—	—	
Additional paid-in capital	—	232,409	
Accumulated other comprehensive loss	(105)	(105)	
Accumulated deficit	(174,577)	(174,577)	
Total stockholders' (deficit) equity	(174,681)	57,737	
Total capitalization	$ 57,737	$ 57,737	

(1) Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the amount of each of cash and cash equivalents, additional paid-in capital, total stockholders' (deficit) equity and total capitalization on a pro forma as adjusted basis by $ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions. We may also increase or decrease the number of shares we are offering. Similarly, each increase (decrease) of 1,000,000 shares offered by us would increase (decrease) the amount of each of cash and cash equivalents, total stockholders' equity (deficit) and total capitalization on a pro forma as adjusted basis by $ million, assuming the assumed initial public offering price remains the same, and after deducting the estimated underwriting discounts and commissions.

The number of shares of our common stock in the table above is based on 10,089,106 shares of common stock outstanding as of June 30, 2017, which gives effect to the pro forma transactions described above, and excludes:

- 1,522,901 shares of common stock issuable upon the exercise of stock options outstanding as of June 30, 2017 at a weighted average exercise price of $18.64 per share;

- 654,624 shares of common stock issuable upon the exercise of warrants to purchase common stock outstanding as of June 30, 2017 at an exercise price of $23.56 per share;
- shares of common stock reserved for future issuance under our Amended and Restated 2010 Stock Incentive Plan, effective as of the effective date of the registration statement of which this prospectus is a part; and
- shares of common stock reserved for future issuance under our 2017 Employee Stock Purchase Plan, effective as of the effective date of the registration statement of which this prospectus is a part.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be immediately diluted to the extent of the difference between the initial public offering price per share of our common stock and the pro forma as adjusted net tangible book value per share of our common stock after this offering.

As of June 30, 2017, our historical net tangible book value (deficit) was $(174.7) million, or $(124.02) per share of our common stock. Our historical net tangible book value (deficit) is the amount of our total tangible assets less our liabilities and convertible preferred stock, which is not included within stockholders' equity (deficit). Historical net tangible book value (deficit) per share is our historical net tangible deficit divided by the number of shares of common stock outstanding as of June 30, 2017.

Our pro forma net tangible book value as of June 30, 2017, was $57.7 million, or $5.72 per share of common stock. Pro forma net tangible book value represents the amount of our total tangible assets less our total liabilities after giving effect to the automatic conversion of all shares of our convertible preferred stock outstanding into an aggregate of 8,680,566 shares of our common stock, which will occur upon the closing of this offering.

Our pro forma as adjusted net tangible book value as June 30, 2017, which is our pro forma net tangible book value at that date, after giving effect to the sale of shares of our common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, would have been $ million, or $ per share. This represents an immediate increase in pro forma as adjusted net tangible book value of $ per share to our existing stockholders and an immediate dilution of $ per share to new investors participating in this offering. Dilution per share to new investors is determined by subtracting pro forma as adjusted net tangible book value per share after this offering from the assumed initial public offering price per share paid by new investors.

The following table illustrates this dilution on a per share basis:

Assumed initial public offering price per share		$
Historical net tangible book value (deficit) per share as of June 30, 2017	$ (124.02)	
Pro forma increase in net tangible book value (deficit) per share attributable to the automatic conversion of all outstanding shares of our preferred stock	129.74	
Pro forma net tangible book value per share as of June 30, 2017	5.72	
Increase in pro forma net tangible book value per share attributable to investors participating in this offering		
Pro forma as adjusted net tangible book value per share after this offering		
Dilution per share to new investors participating in this offering		$

The information discussed above is illustrative only, and the dilution information following this offering will depend on the actual initial public offering price and other terms of this offering determined at pricing. Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted net tangible book value per share after this offering by $ per share and the dilution in pro forma per share to investors participating in this offering by $ per share, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions.

Similarly, each 1,000,000 share increase in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase the pro forma as adjusted net tangible book value per share after this offering by $ and decrease the dilution in pro forma per share to investors participating in this offering by $, assuming the assumed initial public offering price remains the same, and after deducting the estimated underwriting discounts and commissions. A 1,000,000 share decrease in the number of shares offered by us, as set forth on the cover page of this prospectus, would decrease the pro forma as adjusted net tangible book value per share after this offering by $ and increase the dilution in pro forma per share to investors participating in this offering by $, assuming the assumed initial public offering price remains the same, and after deducting the estimated underwriting discounts and commissions.

If the underwriters exercise their option to purchase additional shares in full, the pro forma as adjusted net tangible book value will increase to $ per share, representing an immediate increase in pro forma as adjusted net tangible book value to existing stockholders of $ per share and an immediate decrease of dilution of $ per share to investors participating in this offering.

The following table summarizes, as of June 30, 2017, on a pro forma as adjusted basis as described above, the total number of common shares purchased from us on an as converted to common share basis, the total consideration paid or to be paid, and the average price per share paid or to be paid by existing stockholders and by new investors in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. As the table below shows, investors participating in this offering will pay an average price per share substantially higher than our existing stockholders paid.

	Shares purchased		Total consideration		
	Number	Percent	Amount (in thousands)	Percent	Average price per share
Existing stockholders before this offering	10,089,106	%	$ 185,875	%	$ 18.42
Investors participating in this offering					
Total		100%	$	100%	

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the total consideration paid by investors participating in this offering and total consideration paid by all stockholders by $ million and , in the case of an increase, would increase the percentage of total consideration paid by new investors by percentage points and, in the case of a decrease, would decrease the percentage of total consideration paid by new investors by percentage points, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same.

Similarly, each 1,000,000 share increase (decrease) in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) the total consideration paid by investors participating in this offering and total consideration paid by all stockholders by $ million, and, in the case of an increase, would increase the percentage of total consideration paid by new investors by percentage points and, in the case of a decrease, would decrease the percentage of total consideration paid by new investors by percentage points, assuming the assumed initial public offering price remains the same.

If the underwriters exercise their option to purchase additional shares in full in this offering, the number of shares of common stock held by existing stockholders will be reduced to % of the total number of shares of common stock to be outstanding after this offering, and the number of shares of common stock held by investors participating in this offering will be further increased to , or % of the total number of shares of common stock to be outstanding after this offering.

The number of shares of our common stock reflected in the discussion above is based on 10,089,106 shares of common stock outstanding as of June 30, 2017, which gives effect to the pro forma transactions described above, and excludes:

- 1,522,901 shares of common stock issuable upon the exercise of stock options outstanding as of June 30, 2017 at a weighted average exercise price of $18.64 per share;
- 654,624 shares of common stock issuable upon the exercise of warrants to purchase common stock outstanding as of June 30, 2017 at an exercise price of $23.56 per share;
- shares of common stock reserved for future issuance under our Amended and Restated 2010 Stock Incentive Plan, effective as of the effective date of the registration statement of which this prospectus is a part; and
- shares of common stock reserved for future issuance under our 2017 Employee Stock Purchase Plan, effective as of the effective date of the registration statement of which this prospectus is a part.

To the extent that stock options are exercised, new stock options are issued under our stock incentive plans, or we issue additional shares of common stock in the future, there will be further dilution to investors participating in this offering. In addition, we may choose to raise additional capital because of market conditions or strategic considerations, even if we believe that we have sufficient funds for our current or future operating plans. If we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

SELECTED CONSOLIDATED FINANCIAL DATA

This section should be read together with our consolidated financial statements and accompanying notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing elsewhere in this prospectus. We derived the selected consolidated statement of operations data for the years ended December 31, 2015 and 2016 and the selected consolidated balance sheet data as of December 31, 2015 and 2016 from our audited consolidated financial statements and accompanying notes appearing elsewhere in this prospectus. We derived the selected statement of operations data for the six months ended June 30, 2016 and 2017 and the selected balance sheet data as of June 30, 2017 from our unaudited interim consolidated financial statements and accompanying notes appearing elsewhere in this prospectus. The selected consolidated financial data in this section are not intended to replace our consolidated financial statements and the related notes. The unaudited interim consolidated financial data, in management's opinion, have been prepared on the same basis as the audited consolidated financial statements and the related notes included elsewhere in this prospectus, and include all adjustments, consisting only of normal recurring adjustments, that management considers necessary for a fair presentation of the information for the periods presented. Our historical results are not necessarily indicative of the results that may be expected in the future and results from our interim period may not necessarily be indicative of the results of the entire year or any future period.

(in thousands, except share and per share data)	Years Ended December 31, 2015	Years Ended December 31, 2016	Six Months Ended June 30, 2016	Six Months Ended June 30, 2017
Consolidated Statement of Operations Data:				
Licensing revenues	$ 85	$ 47,500	$ 47,500	$ —
Operating expenses:				
Research and development	22,156	15,311	8,373	8,979
Selling, general and administrative	6,006	6,869	3,296	6,661
Total operating expenses	28,162	22,180	11,669	15,640
(Loss) income from operations	(28,077)	25,320	35,831	(15,640)
Other (income) expense, net:				
Interest (income) expense	791	3,374	1,676	767
Other (income) expense	(554)	(667)	(152)	(124)
Total other (income) expense, net	237	2,707	1,524	643
Net (loss) income	(28,314)	22,613	34,307	(16,283)
Accretion of redeemable convertible preferred stock	(12,061)	(13,114)	(6,557)	(8,224)
Net (loss) income attributable to common stockholders	$ (40,375)	$ 9,499	$ 27,750	$ (24,507)
Net (loss) income per share of common stock,				
basic	$ (28.79)	$ 1.15	$ 3.35	$ (17.40)
diluted	$ (28.79)	$ 0.94	$ 2.74	$ (17.40)
Weighted average common shares outstanding,				
basic	1,402,290	1,403,900	1,402,290	1,408,540
diluted	1,402,290	1,724,513	1,717,460	1,408,540
Pro forma net income (loss) per share of common stock,				
basic (unaudited)		$ 2.73		$ (1.76)
diluted (unaudited)		$ 2.63		$ (1.76)
Pro forma weighted average common shares outstanding,				
basic (unaudited)		8,279,414		9,251,267
diluted (unaudited)		8,600,027		9,251,267

(in thousands)	As of December 31, 2015	As of December 31, 2016	As of June 30, 2017
Consolidated Balance Sheet Data:			
Cash and cash equivalents	$ 15,198	$ 36,797	$ 58,887
Working capital[(1)]	8,624	34,765	54,689
Total assets	16,009	41,551	63,962
Convertible notes	14,480	15,256	—
Redeemable convertible preferred stock	155,059	168,173	232,418
Accumulated deficit	(161,252)	(151,099)	(174,577)
Total stockholders' deficit	(161,392)	(151,197)	(174,681)

(1) Working capital is calculated as current assets minus current liabilities.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion summarizes the significant factors affecting the operating results, financial condition, liquidity and cash flows of our company as of and for the periods presented below. The following discussion and analysis should be read in conjunction with "Prospectus Summary — Summary Consolidated Financial Data," "Selected Consolidated Financial Data" and the consolidated financial statements and the related notes thereto included elsewhere in this prospectus. The statements in this discussion regarding industry outlook, our expectations regarding our future performance, liquidity and capital resources and all other non-historical statements in this discussion are forward-looking statements and are based on the beliefs of our management, as well as assumptions made by, and information currently available to, our management. Actual results could differ materially from those discussed in or implied by forward-looking statements as a result of various factors, including those discussed below and elsewhere in this prospectus, particularly in the section entitled "Risk Factors."

Overview

We are a specialty pharmaceutical company focused on the development and commercialization of products for patients treated by ear, nose and throat, or ENT, and allergy specialists. Our lead product, XHANCE, is a therapeutic utilizing our proprietary Breath Powered exhalation delivery system, or EDS, that delivers a topically-acting and potent anti-inflammatory corticosteroid for the treatment of chronic rhinosinusitis with and without nasal polyps. Chronic rhinosinusitis is a serious nasal inflammatory disease that is currently treated using therapies, such as intranasal steroids, or INS, that have significant limitations. We believe XHANCE has a differentiated clinical profile with the potential to become part of the standard of care for this disease because it is able to deliver medication to the primary site of inflammation high and deep in the nasal passages in regions not adequately reached by current INS. We also believe that payors will respond favorably to XHANCE's clinical, cost, and quality-of-care profile, as compared to current and potential future costly drug therapy and surgical treatment options.

On September 18, 2017, the U.S. Food and Drug Administration, or FDA, approved our new drug application, or NDA, for XHANCE for the treatment of nasal polyps in adults. We expect to launch XHANCE in the second quarter of 2018 with a dedicated sales force targeting a specialty prescriber base comprised of approximately 15,000 physicians in the United States. We plan to initiate additional clinical trials of XHANCE in the second half of 2018 to seek a follow-on indication for the treatment of chronic sinusitis to broaden our market opportunity. XHANCE is the second commercial product that we have developed utilizing our EDS. Our first commercial product, indicated for the acute treatment of migraines in adults, was licensed in 2013 to Avanir Pharmaceuticals, Inc., or Avanir, and was approved by the FDA in January 2016.

Since inception, we have incurred significant net losses and expect to continue to incur net losses for the foreseeable future. To date, we have generated revenue primarily from our license agreement with Avanir, or the AVP-825 License Agreement, pursuant to which we granted them the exclusive right to further develop and commercialize AVP-825 for the acute treatment of migraines in adults. We have not generated any commercial product revenue to date and we do not expect to generate any additional revenue from the AVP-825 License Agreement in the near term, as future sales milestones and royalty payments are subject to the achievement of specified sales thresholds. We had net income of $22.6 million for the year ended December 31, 2016 and $34.3 million for the six months ended June 30, 2016 due primarily to the achievement of a development milestone under the AVP-825 License Agreement. However, we incurred net losses of $28.3 million for year ended December 31, 2015 and $16.3 million for the six months ended June 30, 2017. We incurred net losses in all other prior periods. As of June 30, 2017, we had an accumulated deficit of $174.6 million. We have funded our operations primarily through the sale and issuance of preferred stock, as well as licensing revenues received under the AVP-825 License Agreement. As of June 30, 2017, we had $58.9 million in cash and cash equivalents.

We expect to continue to incur substantial net losses and negative cash flows from operations for the foreseeable future as we begin to commercialize XHANCE and from our ongoing activities.

Our results may vary depending on many factors, including our ability to obtain regulatory approval of XHANCE for the follow-on indication for the treatment of chronic sinusitis, to achieve market acceptance of XHANCE among physicians, patients and third-party payors and to continue development activities for our other product candidates.

We believe that the net proceeds from this offering, together with our existing cash and cash equivalents, will be sufficient to fund our operations until . However, we will need to raise additional capital in the future to further the commercialization of XHANCE for the treatment of nasal polyps, to further the clinical development of XHANCE for a follow-on indication for the treatment of chronic sinusitis, and to support the development of our other product candidates. We may seek to obtain additional financing in the future through the issuance of our common stock, through other equity or debt financings or through collaborations or partnerships with other companies. We may not be able to raise additional capital on terms acceptable to us, or at all, and any failure to raise capital as and when needed could compromise our ability to execute on our business plan and cause us to delay or curtail our operations until such funding is received.

Financial Operations Overview

Licensing revenues

To date, we have not generated any revenues from product sales. Substantially all of our revenue to date has been derived from the AVP-825 License Agreement. We do not expect to generate significant product revenue unless and until we commercialize XHANCE and our other product candidates.

In July 2013, we, through our wholly owned subsidiary, OptiNose AS, entered into the AVP-825 License Agreement under which we granted an exclusive license to Avanir to further develop and commercialize AVP-825 (now marketed as Onzetra Xsail). Under the terms of the AVP-825 License Agreement, we have received $70.0 million in aggregate licensing revenues to date in connection with the initial signing and the achievement of development milestones, including a $47.5 million payment upon FDA approval of AVP-825 in the first quarter of 2016. We are eligible to receive up to an additional $50.0 million upon the achievement of annual sales milestones and tiered low double-digit royalty payments once and if net sales of the product exceed a specified cumulative threshold. We do not expect to generate any additional revenue from the AVP-825 License Agreement in the near term.

Research and development expense

Research and development expense consists substantially of costs incurred in connection with the development and pursuit of regulatory approval for XHANCE for the treatment of nasal polyps. We expense research and development costs as incurred. These expenses include:

- personnel expenses, including salaries, benefits and stock-based compensation expense;
- costs of funding research performed by third parties, including pursuant to agreements with contract research organizations, or CROs, as well as investigative sites and consultants that conduct our preclinical studies and clinical trials;
- expenses incurred under agreements with contract manufacturing organizations, or CMOs, including manufacturing scale-up expenses and the cost of acquiring and manufacturing preclinical study and clinical trial materials;
- consultant fees and expenses associated with outsourced professional scientific development services;
- expenses for regulatory activities, including filing fees paid to regulatory agencies and costs incurred to compile filings with the FDA;
- costs incurred to maintain, expand and protect our patent portfolio; and
- allocated expenses for facility costs, including rent, utilities, depreciation and maintenance.

We typically use our employee, consultant and infrastructure resources across our research and development programs. Although we track certain outsourced development costs by product candidate, we do not allocate personnel costs or other internal costs to specific product candidates.

We plan to incur research and development expenses for the foreseeable future as we expect to seek to continue development of XHANCE for a follow-on indication for the treatment of chronic sinusitis and our other product candidates. At this time, due to the inherently unpredictable nature of preclinical and clinical development, and given the preliminary nature of our clinical trial design for XHANCE for a follow-on indication for the treatment of chronic sinusitis and the FDA-mandated pediatric studies for XHANCE, and the early stage of our other product candidates, we are unable to estimate with any certainty the costs we will incur and the timelines we will require in our continued development efforts.

Selling, general and administrative expense

Selling, general and administrative expense consists primarily of personnel expenses, including salaries, benefits and stock-based compensation expense, for employees in executive, finance, accounting, business development, legal and human resource functions. General and administrative expense also includes corporate facility costs, including rent, utilities, depreciation and maintenance, not otherwise included in research and development expense, as well as legal fees related to corporate matters and fees for accounting and other consulting services.

We anticipate that our general and administrative expense will increase as a result of an expanded infrastructure and an increased headcount. We anticipate higher corporate infrastructure costs including, but not limited to accounting, legal, human resources, consulting and investor relations fees, as well as increased director and officer insurance premiums, associated with becoming a public company.

Sales and marketing related expenses consist of market research and other activities to prepare for the anticipated commercialization of XHANCE, as well as salaries and related benefits for employees focused on such efforts. We anticipate an increase in headcount and expense, including in connection with the engagement of a contract sales organization, as a result of our preparation for the commercial launch of XHANCE in the United States.

Interest (income) expense

Interest (income) expense consists of interest earned on our cash and cash equivalents held with institutional banks and interest expense related to amounts amortized and accrued under our convertible notes that were converted into preferred stock in March 2017.

Other (income) expense

Other (income) expense consists primarily of grant and other income as a result of government cost reimbursements for research and development activities over a contractually defined period, as well as foreign currency income (losses) due to exchange rate fluctuations on transactions denominated in a currency other than our functional currency.

Consolidated Results of Operations

Comparison of six months ended June 30, 2016 and 2017

The following table sets forth our selected consolidated statements of operations data for the periods indicated (in thousands):

	Six Months Ended June 30,	
	2016	2017
Licensing revenues	$ 47,500	$ —
Operating expenses:		
Research and development	8,373	8,979
Selling, general and administrative	3,296	6,661
Total operating expenses	11,669	15,640
Income (loss) from operations	35,831	(15,640)
Other (income) expense:		
Interest (income) expense	1,676	767
Other (income) expense	(152)	(124)
Total other (income) expense	1,524	643
Net income (loss)	$ 34,307	$ (16,283)

Licensing Revenues

Revenue was $47.5 million and $0 for the six months ended June 30, 2016 and 2017, respectively. Revenue earned during the six months ended June 30, 2016 was attributable to the achievement of a development milestone under the terms of the AVP-825 License Agreement as a result of FDA approval of Onzetra Xsail in January 2016.

Research and development expense

Research and development expenses were $8.4 million and $9.0 million for the six months ended June 30, 2016 and 2017, respectively. The $0.6 million increase was attributable primarily to:

- a $0.4 million increase in research and development spending in connection with collecting feedback on our clinical trial results and to prepare for our planned clinical trials for a follow-on indication for the treatment of chronic sinusitis;
- a $0.3 million increase in intellectual property expenses as a result of an increase in new patent filings;
- a $0.2 million increase in contract manufacturing expenses as a result of our preparation for the commercial launch of XHANCE for the treatment of nasal polyps;
- a $0.2 million increase in personnel expenses due to increases in stock-based compensation expense; and
- a $0.2 million increase in rent expense and other operating expenses in connection with our new corporate office lease.

These increases were offset primarily by:

- a $0.7 million decrease in regulatory expenses as a result of the substantial completion of our NDA submission activities for XHANCE for the treatment of nasal polyps.

Selling, general and administrative expense

Selling, general and administrative expenses were $3.3 million and $6.7 million for the six months ended June 30, 2016 and 2017, respectively. The $3.4 million increase was due primarily to:

- a $1.5 million increase in commercial expenses for our preparation of the commercial launch of XHANCE for the treatment of nasal polyps;
- a $0.7 million increase in professional fees as a result of our preparations to become a public company;
- a $0.7 million increase in personnel expenses due primarily to increased headcount;
- a $0.3 million increase in stock-based compensation expense; and
- a $0.2 million increase in rent and other operating expenses in connection with our new corporate office lease.

Interest (income) expense, net

Interest (income) expense, net, was $1.7 million and $0.8 million for the six months ended June 30, 2016 and 2017, respectively, and was related primarily to our convertible notes. The convertible notes were converted to shares of preferred stock in March 2017.

Other (income) expense, net

Other income, net, was $0.2 million and $0.1 million for the six months ended June 30, 2016 and 2017, respectively. The income in both periods was attributable primarily to grant eligible research and development expenses incurred by OptiNose AS, our Norwegian subsidiary.

Comparison of the years ended December 31, 2015 and 2016

The following table sets forth our selected consolidated statements of operations data for the periods indicated (in thousands):

	Year Ended December 31,	
	2015	2016
Licensing revenues	$ 85	$ 47,500
Operating expenses:		
Research and development	22,156	15,311
Selling, general and administrative	6,006	6,869
Total operating expenses	28,162	22,180
Income (loss) from operations	(28,077)	25,320
Other (income) expense:		
Interest (income) expense	791	3,374
Other (income) expense	(554)	(667)
Total other (income) expense	237	2,707
Net income (loss)	$ (28,314)	$ 22,613

Licensing Revenues

Revenue was $0.1 million and $47.5 million for the years ended December 31, 2015 and 2016, respectively. Revenue earned during the year ended December 31, 2015 was attributable to research and development services provided in connection with the AVP-825 License Agreement. Revenue earned during the year ended December 31, 2016 was attributable to the achievement of a development milestone under the terms of the AVP-825 License Agreement as a result of FDA approval of Onzetra Xsail in January 2016.

Research and development expense

Research and development expenses were $22.2 million and $15.3 million for the years ended December 31, 2015 and 2016, respectively. The $6.9 million decrease was attributable primarily to the $10.0 million decrease in clinical development and chemistry, manufacturing and controls expenses in connection with the substantial completion of our Phase 3 program of XHANCE for the treatment of nasal polyps in 2015.

This decrease was offset primarily by:

- a $1.9 million increase in bonus expense;
- a $0.8 million increase in regulatory and intellectual property maintenance costs in connection with the submission of our NDA for XHANCE for the treatment of nasal polyps;
- a $0.3 million increase in personnel expenses; and
- a $0.1 million increase in rent and other operating expenses in connection our new corporate office lease.

Selling general and administrative expense

Selling, general and administrative expenses were $6.0 million and $6.9 million for the years ended December 31, 2015 and 2016, respectively. The $0.9 million increase was due primarily to:

- a $1.2 million increase in bonus expense;
- a $0.6 million increase in professional service expenses as a result of our preparations to become a public company and for our commercial launch of XHANCE for the treatment of nasal polyps;
- a $0.3 million increase in personnel expenses; and
- a $0.1 million increase in rent and other operating expenses in connection with our new corporate office lease.

These increases were offset by a $1.3 million decrease in marketing-related expenses incurred in connection with market research and commercial feasibility studies that we commissioned for XHANCE in 2015.

Interest (income) expense, net

Interest expense, net, was $0.8 million and $3.4 million for the years ended December 31, 2015 and 2016, respectively. The $2.6 million increase was attributable primarily to the September 2015 issuance of $15.0 million in convertible notes.

Other (income) expense, net

Other income, net, was $0.6 million and $0.7 million for the years ended December 31, 2015 and 2016, respectively. The $0.1 million increase was due primarily to an increase in grant eligible research and development expenses incurred by OptiNose AS, our Norwegian subsidiary.

Liquidity and Capital Resources

We have funded our operations primarily through the sale and issuance of preferred stock, as well as through licensing revenues received under the terms of the AVP-825 License Agreement. As of June 30, 2017, we had $58.9 million in cash and cash equivalents.

Since inception, we have incurred significant net losses and expect to continue to incur net losses for the foreseeable future. We had net income of $22.6 million for the year ended December 31, 2016 and $34.3 million for the six months ended June 30, 2016 due primarily to the achievement of a milestone under the AVP-825 License Agreement. However, we incurred net losses of $28.3 million for the year ended December 31, 2015 and $16.3 million for the six months ended June 30, 2017. We incurred net losses in all other prior periods. As of June 30, 2017, we had an accumulated deficit of $174.6 million.

Although it is difficult to predict future liquidity requirements, we believe that the net proceeds from this offering, together with existing cash and cash equivalents, will be sufficient to fund our operations until , during which time, we expect to launch XHANCE for the treatment of nasal polyps in the United States, continue our clinical development of XHANCE for a follow-on indication for the treatment of chronic sinusitis and continue our early-stage development efforts with respect to our other product candidates. We have based this estimate on assumptions that may prove to be incorrect and we could use our available capital resources sooner than we currently expect. We may never become profitable, or if we do, we may not be able to sustain profitability on a recurring basis. If additional funding is not secured when required, we may need to delay or curtail our operations until such funding is received.

The following table shows a summary of our cash flows for the periods indicated (in thousands):

	Year Ended December 31,		Six Months Ended June 30,	
	2015	2016	2016	2017
Net cash (used in) provided by operating activities	$ (28,714)	$ 21,720	$ 32,388	$ (13,627)
Net cash used in investing activities	(80)	(215)	(6)	(711)
Net cash provided by financing activities	19,123	55	—	36,434
Effects of exchange rates on cash and cash equivalents	(14)	39	34	(6)
Net (decrease) increase in cash and cash equivalents	$ (9,685)	$ 21,599	$ 32,416	$ 22,090

Operating activities

Cash provided by (used in) operating activities increased by $50.4 million, from $(28.7) million for the year ended December 31, 2015 to $21.7 million for the year ended December 31, 2016. The $50.4 million increase in cash provided by operating activities was attributable primarily to the net income generated from the $47.5 million of licensing revenue earned in connection with the achievement of a development milestone under the terms of the AVP-825 License Agreement resulting from FDA approval of Onzetra Xsail in January 2016.

Cash provided by (used in) operating activities decreased by $46.0 million, from $32.4 million for the six months ended June 30, 2016 to $(13.6) million for the six months ended June 30, 2017. The $46.0 million decrease in cash provided by operating activities was attributable primarily to net income generated from the $47.5 million of licensing revenue earned in connection with the achievement of a development milestone under the terms of the AVP-825 License Agreement resulting from FDA approval of Onzetra Xsail in January 2016. No revenue was generated from the AVP-825 License Agreement during the six months ended June 30, 2017.

Investing activities

Cash used in investing activities increased $0.1 million from $0.1 million for the year ended December 31, 2015 to $0.2 million for the year ended December 31, 2016. The $0.1 million increase was related to increased purchases of equipment.

Cash used in investing activities increased $0.7 million from $6,000 for the six months ended June 30, 2016 to $0.7 million for the six months ended June 30, 2017. The $0.7 million increase was related to increased purchases of equipment in connection with the preparation for the commercial launch of XHANCE.

Financing activities

Cash provided by financing activities decreased $19.0 million from $19.1 million for the year ended December 31, 2015 to $0.1 million for the year ended December 31, 2016. During 2015, we received $4.8 million in net proceeds from the sale of our Series C-1 Preferred Stock and $14.3 million in net

proceeds from the sale and issuance of our convertible promissory notes that were subsequently converted to Series C-2 Preferred Stock in March 2017. During 2016, we received $0.1 million in cash from stock option exercises.

Cash provided by financing activities increased $36.4 million from $0 for the six months ended June 30, 2016 to $36.4 million for the six months ended June 30, 2017. During 2017, we received $36.4 million in net proceeds from the sale of our Series D Preferred Stock.

Sources of capital

AVP-825 License Agreement

As described above, under the terms of the AVP-825 License Agreement, we received $70.0 million in aggregate licensing revenues to date in connection with the initial signing and the achievement of development milestones, including a $47.5 million payment upon FDA approval of AVP-825 in the first quarter of 2016. We are eligible to receive up to an additional $50.0 million upon the achievement of annual sales milestones and tiered low double-digit royalty payments once and if net sales of the product exceed a specified cumulative threshold. We do not expect to generate any additional revenue from the AVP-825 License Agreement in the near term.

Series C-1 and Series D Redeemable Convertible Preferred Stock

In July 2014, we issued and sold an aggregate of 1,419,781 shares of our Series C-1 Preferred Stock to some of our existing investors and members of our management team and board of directors at a purchase price of $21.13 per share, for aggregate consideration of $30.0 million. We subsequently sold an additional 236,629 shares of our Series C-1 Preferred Stock at a purchase price of $21.13 per share, for aggregate consideration of $5.0 million in July 2015.

In March 2017, we issued and sold an aggregate of 1,065,451 shares of our Series D Preferred Stock to new investors and some of our existing stockholders at a purchase price of $32.85 per share, for aggregate consideration of $35.0 million. In April 2017 and May 2017, we issued and sold to some of our existing stockholders an additional 52,127 shares of our Series D Preferred Stock at a purchase price of $32.85 per share, for additional aggregate consideration of $1.7 million.

In September 2015, we entered into a convertible note purchase agreement with some of our existing stockholders to borrow up to $30.0 million. We borrowed $15.0 million of the total loan amount in the form of convertible promissory notes, or the Notes, in September 2015, and retained the option to borrow a second $15.0 million tranche until March 30, 2017. In addition to front-end and back-end fees owed on the Notes, the Notes bore interest at a rate of 17.0% per annum and, if not converted prior, would mature on September 30, 2020. In March 2017, concurrently with our Series D Preferred Stock financing, the 2015 Notes (including all principal, interest and back-end fees thereon) were converted into an aggregate of 687,474 shares of our Series C-2 Preferred Stock at a conversion price of $28.40 per share.

Funding requirements

We expect to continue to incur significant expenses in connection with our ongoing activities, particularly as we:

- engage a contract specialty sales force, projected to initially consist of approximately 75 sales representatives, to market XHANCE for the treatment of nasal polyps and build commercial infrastructure to support sales and marketing for XHANCE;
- continue clinical development activities for XHANCE, including FDA-mandated pediatric studies, and seek regulatory approval for XHANCE for a follow-on indication of chronic sinusitis;
- hire additional staff and add operational, financial and information systems to execute our business plan;
- maintain, expand and protect our patent portfolio;
- contract to manufacture XHANCE and our other product candidates;

- continue research and development activities for our other product candidates; and
- operate as a public company.

Our future funding requirements, both near and long-term, will depend on many factors, including, but not limited to:

- the success of our commercialization of XHANCE for the treatment of nasal polyps;
- the cost and timing of completion of commercial-scale outsourced manufacturing activities;
- our clinical development plans for XHANCE, including FDA-mandated pediatric studies and clinical trials for the follow-on indication for the treatment of chronic sinusitis;
- the outcome, timing and cost of the regulatory approval process of XHANCE for chronic sinusitis by the FDA, including the potential for the FDA to require that we perform more studies and clinical trials than those that we currently expect;
- the cost of filing, prosecuting, defending and enforcing our patent claims and other intellectual property rights;
- the cost of defending intellectual property disputes, including patent infringement actions brought by third parties against us;
- potential future licensing revenue from the AVP-825 License Agreement;
- the initiation, progress, timing, costs and results of clinical trials for our other product candidates; and
- the extent to which we in-license or acquire other products, product candidates or technologies.

We believe that the anticipated net proceeds from this offering, together with our existing cash and cash equivalents, will enable us to fund our operating expenses and capital expenditure requirements until . We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we expect. We expect that we will need to raise additional capital in the future to further the commercialization of XHANCE for the treatment of nasal polyps, to complete the clinical development of XHANCE for a follow-on indication for the treatment of chronic sinusitis, and to support the development of our other product candidates. We expect to incur significant commercialization expenses related to product manufacturing, sales, marketing and distribution of XHANCE. Additional funds may not be available on a timely basis, on favorable terms, or at all, and such funds, if raised, may not be sufficient to enable us to continue to implement our long-term business strategy. If we cannot expand our operations or otherwise capitalize on our business opportunities because we lack sufficient capital, our business, financial condition and results of operations could be materially adversely affected and we may need to delay or curtail our operations until such funding is received.

Contractual obligations and commitments

The following table summarizes our contractual obligations at December 31, 2016:

	Less than 1 Year	1 to 3 Years	3 to 5 Years	More than 5 Years	Total
			(in thousands)		
Operating leases[1]	$ 657	$ 193	$ —	$ —	$ 850
Long-term debt[2]	—	—	18,859	—	18,859
Total	$ 657	$ 193	$ 18,859	$ —	$ 19,709

(1) Reflects obligations pursuant to our office leases in Yardley, Pennsylvania, Oslo, Norway and Swindon, England.

(2) Reflects principal and interest obligations pursuant to the Notes that were converted into shares of our Series C-2 Preferred Stock in March 2017. Accordingly, no further amounts are payable under the Notes.

Off-balance sheet arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Critical accounting policies

Our consolidated financial statements are prepared in accordance with U.S. generally accepted accounting principles, or GAAP. The preparation of our consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of expenses during the reported period. We base our estimates on historical experience, known trends and events and various other factors that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. We evaluate our estimates and assumptions on an ongoing basis. Our actual results may differ from these estimates under different assumptions and conditions.

While our significant accounting policies are described in more detail in the notes to our consolidated financial statements appearing elsewhere in this prospectus, we believe that the following accounting policies are those most critical to the preparation of our consolidated financial statements.

Revenue recognition

We have generated revenue primarily through licensing arrangements, which generally contain multiple elements, or deliverables, including licenses and research and development activities we perform on behalf of the licensee. Revenues are recognized when (1) persuasive evidence of an arrangement exists, (2) delivery has occurred or services have been rendered, (3) the price is fixed or determinable and (4) collectability is reasonably assured.

Currently, our only source of revenue is the AVP-825 License Agreement. The AVP-825 License Agreement includes licensed rights to patented technology, non-refundable up-front license fees, research services, and regulatory and sales milestones as well as royalty payments.

For arrangements with multiple elements, we recognize revenue in accordance with the Financial Accounting Standards Board, or FASB, Accounting Standards Update, or ASU, No. 2009-13, *Multiple-Deliverable Revenue Arrangements*, which provides guidance for separating and allocating consideration in a multiple element arrangement. The selling prices of deliverables under an arrangement may be derived using third-party evidence, or TPE, or a best estimate of selling price, or BESP, if vendor-specific objective evidence of selling price, or VSOE, is not available. The objective of BESP is to determine the price at which we would transact a sale if each element within the AVP-825 License Agreement was sold on a standalone basis. Deliverables under the arrangement are separate units of accounting if the delivered item has value to the customer on a standalone basis and if the arrangement includes a general right of return relative to the delivered item, and delivery or performance of the undelivered item is considered probable and substantially within our control. The arrangement consideration that is fixed or determinable at the inception of the arrangement is allocated to the separate units of accounting based on their relative selling prices. The appropriate revenue recognition model is applied to each element and revenue is accordingly recognized as each element is delivered. Management exercises significant judgment in determining whether a deliverable is a separate unit of accounting.

In determining the separate units of accounting for our licensing arrangements, we evaluate whether the license has standalone value to the licensee based on consideration of the relevant facts and circumstances for each arrangement. Factors considered in this determination include the research and development capabilities of the licensee and the availability of relevant research expertise in the marketplace. In addition, we consider whether or not the licensee could use the license for its intended purpose without the

receipt of the remaining deliverables, the value of the license was dependent on the undelivered items and the licensee or other vendors could provide the undelivered items.

Whenever we determine that an element is delivered over a period of time, revenue is recognized using either a proportional performance model, if a pattern of performance can be determined, or a straight-line model over the period of performance, which is typically the research and development term.

Development milestones may be triggered either by the results of our research efforts or by events external to it, such as regulatory approval to market a product. Consideration that is contingent upon achievement of a development milestone is recognized in its entirety as revenue in the period in which the milestone is achieved, but only if the consideration earned from the achievement of a milestone meets all the criteria for the milestone to be considered substantive at the inception of the arrangement. For a milestone to be considered substantive, the consideration earned by achieving the milestone must be commensurate with either our performance to achieve the milestone or the enhancement of the value of the item delivered as a result of a specific outcome resulting from our performance to achieve the milestone, relate solely to past performance and be reasonable relative to all deliverables and payment terms in the collaboration agreement. As of December 31, 2016, all development milestones have been achieved under the AVP-825 License Agreement.

Royalties and sales milestones are recorded as earned in accordance with the contract terms when third party sales can be reliably measured and collectability is reasonably assured.

Research and development expenses

Research and development expense consists primarily of costs incurred in connection with development and regulatory approval of XHANCE, as well as costs associated with developing commercial manufacturing capabilities for XHANCE. We expense research and development costs as incurred.

At the end of each reporting period, we compare payments made to third-party service providers to the estimated progress toward completion of the applicable research or development objectives. Such estimates are subject to change as additional information becomes available. Depending on the timing of payments to the service providers and the progress that we estimate has been made as a result of the service provided, we may record net prepaid or accrued expenses relating to these costs. To date, we have not made any material adjustments to our prior estimates of accrued research and development expenses.

Stock-based compensation

We account for stock-based compensation awards in accordance with the FASB Accounting Standards Codification, or ASC, Topic 718, *Compensation — Stock Compensation*, or ASC 718. ASC 718 requires all stock-based compensation awards to employees to be recognized as expense based on their grant date fair values. We use the Black-Scholes option pricing model to value our stock option awards and we account for forfeitures of stock option awards as they occur. For awards issued to employees, we recognize compensation expense on a straight-line basis over the requisite service period, which is generally the vesting period of the award. Stock-based awards issued to nonemployees are revalued at each reporting period until the award vests in accordance with ASC Topic 505, *Equity*. The resulting increase or decrease in value, if any, is recognized as expense or income, respectively, during the period the related services are rendered. Expense for awards with performance conditions is estimated and adjusted on a quarterly basis based upon our assessment of the probability that the performance condition will be met. We have not issued awards where vesting is subject to market conditions; however, if we were to grant such awards in the future, recognition would be based on the derived service period.

Estimating the fair value of options requires the input of subjective assumptions, including the estimated fair value of our common stock, the expected life of the option, stock price volatility, the risk-free interest rate and expected dividends. The assumptions used in our Black-Scholes option-pricing model represent management's best estimates and involve a number of variables, uncertainties and assumptions and the

application of management's judgment, as they are inherently subjective. If any assumptions change, our stock-based compensation expense could be materially different in the future.

These assumptions used in our Black-Scholes option-pricing model are estimated as follows:

- *Expected Term.* Due to the lack of a public market for the trading of our common stock and the lack of sufficient company-specific historical data, the expected term of employee options is determined using the "simplified" method, as prescribed in SEC's Staff Accounting Bulletin, or SAB, No. 107, whereby the expected life equals the arithmetic average of the vesting term and the original contractual term of the option. The expected term of nonemployee options is equal to the contractual term.

- *Expected Volatility.* The expected volatility is based on historical volatilities of similar entities within our industry which were commensurate with the expected term assumption as described in SAB No. 107.

- *Risk-Free Interest Rate.* The risk-free interest rate is based on the interest rate payable on U.S. Treasury securities in effect at the time of grant for a period that is commensurate with the assumed expected term.

- *Expected Dividends.* The expected dividend yield is 0% because we have not historically paid, and do not expect for the foreseeable future to pay, a dividend on our common stock.

The following table reflects the weighted average assumptions used to estimate the fair value of options granted during the periods presented.

	Year Ended December 31, 2016	Six Months Ended June 30, 2017
Expected term (in years)	6.08	6.08
Expected volatility	74.29%	73.93%
Risk-free interest rate	2.22%	2.07%
Expected dividend yield	0%	0%
Fair value of common stock	$ 14.85	$ 14.85

No awards were granted during the year ended December 31, 2015 and the six months ended June 30, 2016.

Stock-based compensation expense was $0.6 million, $0.6 million, $0.5 million and $1.0 million for the years ended December 31, 2015 and 2016 and the six months ended June 30, 2016 and 2017, respectively. At June 30, 2017, we had $3.0 million of unamortized stock-based compensation expense related to unvested service-based stock options, which is expected to be recognized over a remaining average vesting period of 3.52 years, and $2.7 million of unamortized stock- based compensation expense related to unvested performance-based stock options, which will be recognized when the occurrence of the performance condition is deemed probable.

We expect the impact of our stock-based compensation expense for stock options granted to employees and non-employees to increase in future periods due to the potential increases in the value of our common stock and in headcount.

Valuation of common stock

All options to purchase shares of our common stock are granted with an exercise price per share equal to or greater than the fair value per share of our common stock on the date of grant, based on the information known to us on the date of grant. We have granted options to certain of our executive officers in the past several years with exercise prices per share in excess of the then estimated fair market value in order to incentivize stock appreciation. Prior to this offering, on each grant date, the fair values of the shares of common stock underlying our stock options were estimated on each grant date by our board of directors, based on information known to us at the date of grant. In order to determine the fair value of our common stock, our board of directors considered, among other things, contemporaneous valuations of our common and preferred stock prepared by an unrelated third-party valuation firm in accordance with the guidance provided by the American Institute of Certified Public Accountants Practice Aid, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*, or the Practice Aid. Given the absence of a public trading market of our capital stock, our board of directors exercised reasonable judgment and considered a number of objective and subjective factors to determine the best estimate of the fair value of our common and preferred stock, including:

- contemporaneous third-party valuations of our common stock;
- the prices, rights, preferences and privileges of our preferred stock relative to the common stock;
- our business, financial condition and results of operations, including related industry trends affecting our operations;
- the likelihood of achieving a liquidity event, such as an initial public offering or sale of our company, given prevailing market conditions;
- the lack of marketability of our common stock;
- the market performance of comparable publicly traded companies; and
- U.S. and global economic and capital market conditions and outlook.

After the closing of this offering, our board of directors will determine the per share fair value of our common stock based on the closing price of our common stock as reported by The NASDAQ Global Market on the date of grant.

Stock Option Grants

The following table summarizes by grant date the number of shares of common stock underlying stock options granted from January 1, 2016 through the date of this prospectus, as well as the associated per

share exercise price and the estimated fair value per share of our common stock as determined by our board of directors as of the grant date:

Grant date	Number of shares subject to options granted	Exercise price per share of common stock	Estimated fair value per share of common stock	Estimated fair value per share of common stock option award
December 20, 2016[1]	100,000	$ 47.10	$ 14.85	$ 6.61
December 20, 2016	238,500	14.85	14.85	9.86
January 23, 2017	55,000	14.85	14.85	9.81
January 30, 2017	50,000	14.85	14.85	9.81
February 13, 2017	7,000	14.85	14.85	9.80
February 20, 2017	2,000	14.85	14.85	9.79
February 27, 2017	2,000	14.85	14.85	9.78
August 7, 2017	55,500	20.95	20.95	13.71
September 12, 2017	10,000	20.95	20.95	14.59

(1) Reflects an option granted to one of our executive officers with a per share exercise price in excess of the then estimated fair market value in order to incentivize stock appreciation.

Based on an assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, the intrinsic value of vested and unvested stock options outstanding as of June 30, 2017 was $ million and $ million, respectively.

Recent accounting pronouncements

See Note 3 to our audited and unaudited consolidated financial statements beginning on page F-1 of this prospectus for a description of recent accounting pronouncements applicable to our consolidated financial statements.

Qualitative and quantitative disclosures about market risk

We are exposed to various market risks, which may result in potential losses arising from adverse changes in market rates, such as interest rates and foreign exchange rates. We do not enter into derivatives or other financial instruments for trading or speculative purposes and do not believe we are exposed to material market risk with respect to our cash and cash equivalents.

Through the operation of our subsidiaries based in the United Kingdom and Norway, we are exposed to foreign exchange rate risks. In addition to the operations of our foreign subsidiaries, we also contract with vendors that are located outside the United States, and in some cases make payment of invoices denominated in foreign currencies. We are subject to fluctuations in foreign currency rates in connection with these arrangements. We do not currently hedge our foreign currency exchange rate risk. As of June 30, 2017, we had minimal liabilities denominated in foreign currencies.

As of June 30, 2017, we had cash and cash equivalents of $58.9 million. We do not engage in any hedging activities against changes in interest rates. Because of the short-term maturities of our cash and cash equivalents, we do not believe that an immediate 10% increase in interest rates would have a significant impact on the realized value of our investments.

Inflation generally affects us by increasing our cost of labor and clinical trial costs. We do not believe that inflation had a material effect on our business, financial condition or results of operations during the years ended December 31, 2015 and 2016 or the six months ended June 30, 2016 and 2017.

JOBS Act

On April 5, 2012, the Jumpstart Our Business Startups Act of 2012, or JOBS Act, was signed into law. The JOBS Act contains provisions that, among other things, reduce certain reporting requirements for an "emerging growth company." As an "emerging growth company," we are electing not to take advantage of the extended transition period afforded by the JOBS Act for the implementation of new or revised accounting standards, and as a result, we will comply with new or revised accounting standards on the relevant dates on which adoption of such standards is required for non-emerging growth companies. Section 107 of the JOBS Act provides that our decision not to take advantage of the extended transition period is irrevocable.

Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

On November 7, 2016, we dismissed PricewaterhouseCoopers LLP, or PwC, as our independent auditor. The dismissal was approved by the audit committee of the Board of Directors.

The report of PwC on our consolidated financial statements as of and for the fiscal year ended December 31, 2015 did not contain any adverse opinion or disclaimer of opinion, nor was it qualified or modified as to uncertainty, audit scope or accounting principles.

During the fiscal year ended December 31, 2015, and the subsequent interim period through November 7, 2016, (i) there were no disagreements with PwC on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedures, which disagreements, if not resolved to PwC's satisfaction, would have caused PwC to make reference to the subject matter of the disagreements in their report on the financial statements for such fiscal year, and (ii) there were no "reportable events," as that term is described in Item 304(a)(1)(v) of Regulation S-K.

On December 6, 2016, we engaged Ernst & Young LLP, or EY, to serve as our independent registered public accounting firm, to audit the fiscal year ended December 31, 2016, as well as to reaudit the fiscal year ended December 31, 2015, which had previously been audited by PwC. The engagement of EY has been approved by our board of directors. During the two most recent fiscal years, neither we, nor anyone acting on our behalf, consulted with EY regarding either: (i) the application of accounting principles to a specified transaction, either completed or proposed, or the type of audit opinion that might be rendered on our consolidated financial statements, and no written report nor oral advice was provided by EY, or (ii) any matter that was either the subject of a disagreement, as that term is defined in Item 304(a)(1)(iv) of Regulation S-K, or a reportable event, as that term is defined in Item 304(a)(1)(v) of Regulation S-K.

We requested that PwC furnish us with a letter addressed to the SEC stating whether it agrees with the above statements. A copy of the letter dated June 23, 2017, is filed as an exhibit to the registration statement of which this prospectus forms a part.

BUSINESS

Overview

Our Company

We are a specialty pharmaceutical company focused on the development and commercialization of products for patients treated by ear, nose and throat, or ENT, and allergy specialists. Our lead product, XHANCE, is a therapeutic utilizing our proprietary Breath Powered exhalation delivery system, or EDS, that delivers a topically-acting and potent anti-inflammatory corticosteroid for the treatment of chronic rhinosinusitis with and without nasal polyps. Chronic rhinosinusitis is a serious nasal inflammatory disease that is currently treated using therapies, such as intranasal steroids, or INS, that have significant limitations. We believe XHANCE has a differentiated clinical profile with the potential to become part of the standard of care for this disease because it is able to deliver medication to the primary site of inflammation high and deep in the nasal passages in regions not adequately reached by current INS. We also believe that payors will respond favorably to XHANCE's clinical, cost, and quality-of-care profile, as compared to current and potential future costly drug therapy and surgical treatment options.

On September 18, 2017, the U.S. Food and Drug Administration, or FDA, approved our new drug application, or NDA, for XHANCE for the treatment of nasal polyps in adults. We expect to launch XHANCE in the second quarter of 2018 with a dedicated sales force targeting a specialty prescriber base comprised of approximately 15,000 physicians in the United States. We plan to initiate additional clinical trials of XHANCE in the second half of 2018 to seek a follow-on indication for the treatment of chronic sinusitis to broaden our market opportunity. XHANCE is the second commercial product that we have developed utilizing our EDS. Our first commercial product, indicated for the acute treatment of migraines in adults, was licensed in 2013 to Avanir Pharmaceuticals, Inc., or Avanir, and was approved by the FDA in January 2016.

The Unmet Need

Chronic rhinosinusitis is a serious nasal inflammatory disease characterized by chronic inflammation affecting tissues high and deep in the nasal passages, including the area where the openings from the sinuses normally ventilate and drain. This disease significantly impacts the quality of life and daily functioning of an estimated 30 million adults in the United States. The U.S. healthcare system spends approximately $60 billion annually in direct costs treating patients with chronic rhinosinusitis and its associated symptoms, including an estimated $5 billion on sinus surgeries. In the United States, physicians perform over 500,000 sinus surgeries each year, and we estimate that over seven million adults have undergone sinus surgery to treat chronic rhinosinusitis with and without nasal polyps.

In medical literature and practice, chronic rhinosinusitis is commonly divided into two subgroups: chronic rhinosinusitis with nasal polyps and chronic rhinosinusitis without nasal polyps. Chronic rhinosinusitis patients with and without nasal polyps suffer from chronic inflammation of the lining of the deep nasal passages and sinuses. Patients with chronic rhinosinusitis with nasal polyps also develop non-cancerous polyps on these chronically inflamed surfaces, typically originating in the deep crevices or sinus cavities on both sides of the nose. We estimate that up to 10 million adults in the United States have chronic rhinosinusitis with nasal polyps.

Both subgroups of chronic rhinosinusitis also share the same four defining diagnostic symptoms: nasal congestion/obstruction; facial pain and pressure; rhinorrhea, or runny nose, and postnasal drip; and loss of sense of smell and taste. Additional symptoms include headaches, chronic sleep problems, fatigue, frequent episodes of acute rhinosinusitis and mood disorders. There is evidence suggesting that the harm to a sufferer's quality of life from chronic rhinosinusitis, as measured in multiple domains, such as bodily pain, social functioning and mental health, is comparable to or worse than other serious diseases, including chronic obstructive pulmonary disease, congestive heart failure and angina. As a result, many patients eventually seek surgery for symptom relief.

Although the term chronic rhinosinusitis is often used in medical literature and medical practice, the FDA does not recognize chronic rhinosinusitis as a single indication for drug development purposes. Instead, the FDA recognizes chronic sinusitis, defined as inflammation of the sinuses with a duration longer than eight weeks, and nasal polyps, defined as non-cancerous polyps on the inflamed tissue of the nasal passages and sinuses, as separate indications for drug development purposes. For purposes of this prospectus, we use the terms chronic sinusitis and nasal polyps when referring to FDA treatment indications and our clinical trials, and use the term chronic rhinosinusitis with and without nasal polyps when referring to disease and economic data reported in the medical literature, medical practice and our estimates of XHANCE's market opportunity.

Current Treatment Limitations

Multiple current clinical practice guidelines specify the use of INS early in the treatment algorithm for chronic rhinosinusitis with and without nasal polyps. Steroids are generally pharmacologically effective at treating inflammation. However, conventional INS, including nasal sprays and nasal aerosols, are topically-acting and unable to effectively and consistently place the steroids onto the primary site of inflammation and nasal polyp origin, high and deep in the nasal passages. These products deposit a majority of the drug in the front of the nose or on the floor of the nasal passages, reducing their effectiveness and leaving many patients without sufficient symptomatic relief. These recognized limitations cause some physicians to seek out alternative treatment regimens such as high-volume steroid nasal rinses. This approach, however, has not been well studied, is difficult to administer, can be costly and may risk systemic side effects. Physicians may also prescribe oral steroids on an episodic basis to patients who have not received sufficient symptomatic relief from INS. Oral steroids, which are often effective in reducing inflammation and nasal polyps, offer only temporary benefit and are limited by the risk of significant systemic side effects associated with both short- and long-term use.

In cases where patients remain symptomatic despite medical management, physicians often recommend various forms of sinus surgery to help restore normal sinus ventilation or drainage. The effectiveness of sinus surgery can vary significantly and many patients experience persistent or recurrent symptoms and surgery does not address the underlying cause of inflammation. In patients with nasal polyps, regrowth of the nasal polyps has been reported in as high as 60% of cases within four years. Because sinus surgery is not curative and also does not address the underlying cause of the inflammation, many patients continue to require short- and long-term courses of INS after surgery.

Our Solution

XHANCE combines our EDS with a liquid formulation of fluticasone propionate, a well-characterized, second-generation corticosteroid. XHANCE is designed to deliver medication into the high and deep regions of the nasal passages where both nasal polyps and inflamed and swollen membranes can obstruct normal sinus ventilation and drainage. In multiple studies utilizing advanced imaging, our EDS produced a differentiated pattern of drug delivery with significantly more drug deposited in the high and deep regions of the nasal passages, areas not well accessed by conventional INS delivery mechanisms. We believe XHANCE has the potential to become part of the standard of care for the treatment of patients with chronic rhinosinusitis before they progress to more costly treatment alternatives. We also believe that the current treatment practice of postoperative INS use could support XHANCE's adoption as a maintenance therapy to improve outcomes following sinus surgery.

We have conducted five clinical trials evaluating over 1,500 adult patients, including two randomized, double-blinded, placebo-controlled Phase 3 pivotal clinical trials in adults with nasal polyps and two supportive open-label Phase 3 clinical trials in adults with symptoms of chronic sinusitis with or without nasal polyps. In both Phase 3 pivotal clinical trials, patients treated with XHANCE experienced statistically significant reductions of both nasal congestion/obstruction symptoms and total polyp grade, which were the co-primary endpoints. Treatment benefits were also observed in all four defining symptoms of chronic rhinosinusitis, as well as in polyp elimination, quality of life, need for sinus surgery and patient global impression of change. In addition, the magnitude of improvement for patients treated by XHANCE in our

Phase 3 pivotal clinical trials, as measured by the Sinonasal Outcome Test-22, a validated clinical outcome assessment, was comparable to the reported benefits in third-party studies of endoscopic sinus surgery, or ESS, and balloon sinus dilation. In addition, XHANCE had an adverse event profile generally comparable to the profile reported in similarly designed studies with conventional INS. In our supportive open-label Phase 3 clinical trials, which evaluated approximately 900 patients with symptoms of chronic sinusitis with and without nasal polyps for a period of up to one year, XHANCE was generally well tolerated and produced results on efficacy endpoints similar to those observed in our Phase 3 pivotal clinical trials. In these supportive trials, we observed comparable symptom improvements in patients with and without nasal polyps and continuing incremental polyp reduction and symptom improvement through 12 months.

We believe XHANCE will offer a cost-effective treatment solution to payors who are increasingly being asked to pay for multiple high-cost therapies for a variety of diseases priced at tens of thousands of dollars per year. We intend to price XHANCE comparably to branded INS that are currently approved to treat nasal polyps. We expect XHANCE to be adopted by physicians at a natural point in the care pathway for use in patients with chronic rhinosinusitis with or without nasal polyps before they progress to costly surgical interventions or biologic monoclonal antibodies in development for nasal polyps. Sinus surgery costs between $8,500 and $16,000 per procedure, and we expect that biologic monoclonal antibodies for the treatment of nasal polyps will cost approximately $35,000 per year based on the doses being studied in nasal polyps and the current costs per dose in other indications. We believe XHANCE will offer a cost-effective clinical benefit to payors that will reduce the perceived need for multiple step-edits and prior authorizations, which we believe will increase the likelihood of successful commercial adoption of XHANCE.

Our U.S. Market Opportunity

Our initial target market for XHANCE will consist of ENT physicians, allergists and primary care physicians in the United States that most frequently prescribe INS. This group of approximately 5,000 primary care physicians, which we refer to as high-decile INS-prescribing primary care physicians, account for approximately 25% of all INS prescriptions written by primary care physicians. We refer to these ENT physicians, allergists and high-decile INS-prescribing primary care physicians collectively as the specialty segment of our target market. We believe the approximately 15,000 physicians in this specialty segment together treat an estimated 3.5 million U.S. patients with chronic rhinosinusitis, an estimated 1.2 million of whom have chronic rhinosinusitis with nasal polyps. We believe the total annual U.S. market opportunity for XHANCE in this specialty segment is over $3.4 billion, of which approximately one-third consists of patients with chronic rhinosinusitis with nasal polyps. If we are able to obtain approval for the follow-on indication of chronic sinusitis, we intend to broaden our commercialization efforts to target additional primary care physicians that we believe treat an additional estimated 6.25 million U.S. patients with chronic rhinosinusitis, an estimated one-third of whom have chronic rhinosinusitis with nasal polyps. We refer to these additional primary care physicians as the primary care segment of our target market. We believe the total additional annual U.S. market opportunity for XHANCE in this primary care segment is over $6.0 billion, of which approximately one-third consists of patients with chronic rhinosinusitis with nasal polyps. Therefore, we estimate the total annual U.S. market opportunity for the combined specialty and primary care segments is over $9.5 billion, of which approximately one-third consists of patients with chronic rhinosinusitis with nasal polyps.

Intellectual Property and Barriers to Entry

XHANCE benefits from substantial intellectual property and other technical barriers to entry, including regulatory and drug delivery complexities. Our patent portfolio for XHANCE consists of nine issued U.S. patents expiring through 2030 and 12 U.S. patent applications that, if granted, would expire through 2034. We believe the unique features of our EDS, as well as its delivery of a topically-acting drug, will present generic and 505(b)(2) NDA competitors of XHANCE with human factors engineering challenges specific to drug-device combination products and chemistry, manufacturing and controls challenges unique to suspension and respiratory products. We also believe that any future substitutable generic competitors would be required to conduct, among other things, non-inferiority clinical trials demonstrating equivalent

efficacy and safety outcomes to establish clinical bioequivalence to XHANCE. We believe these clinical trials would require a significant amount of time and capital investment and present clinical development uncertainties.

Our Management Team

We are led by a management team with an average of over 20 years of experience developing and commercializing products at large, multinational pharmaceutical and medical device companies, such as Johnson & Johnson, Sanofi-Aventis, Bristol Myers-Squibb, Takeda and Novartis. Our management team's experience is complemented by its expertise at growing emerging healthcare companies, such as Cephalon, Aton Pharma, NuPathe and Take Care Health System. Our team previously developed our first product using an exhalation delivery system, Onzetra Xsail. We believe the experience of our management team and our broad network of relationships with leaders within the industry and the medical community provide us with insight into product development and identification of product opportunities that benefit patients and physicians in the ENT and allergy specialty segments.

Our Growth Strategy

Our goal is to become a leading specialty pharmaceutical company dedicated to developing proprietary products that become a part of the standard of care for diseases in the ENT and allergy segments. We also plan to expand the use of our EDS into additional indications with significant unmet needs, including potential nose-to-brain drug delivery for central nervous system disorders. The key elements of our strategy are to:

- ***Commercialize XHANCE in the ENT and allergy specialty segments in the United States.*** We plan to deploy an efficient, go-to-market commercialization model and have begun building our commercial leadership team and organization. Initially, we intend to engage a dedicated specialty sales force to promote XHANCE to a defined prescriber base consisting of approximately 10,000 ENT and allergy specialists, as well as approximately 5,000 high-decile INS-prescribing primary care physicians. We believe these physicians treat an estimated 3.5 million chronic rhinosinusitis patients, an estimated 1.2 million of whom have chronic rhinosinusitis with nasal polyps. We expect our sales force will initially consist of approximately 75 representatives.

- ***Pursue pipeline development of XHANCE for chronic sinusitis to broaden our market opportunity.*** We plan to seek a follow-on indication for XHANCE for the treatment of chronic sinusitis. We believe XHANCE would be the first drug therapy product approved for the treatment of chronic sinusitis. Upon approval, we plan to broaden our marketing to additional primary care physicians that we believe treat an additional estimated 6.25 million U.S. patients with chronic rhinosinusitis, an estimated one-third of whom have chronic rhinosinusitis with nasal polyps. If we obtain approval for this indication, we may also direct promotional resources to an additional estimated 20 million adults who are not regularly under the care of physicians for this disease using programs such as direct-to-consumer and direct-to-patient promotion.

- ***Develop a pipeline of additional products focused on the ENT and allergy specialty segments.*** We are evaluating the use of our EDS to deliver other drugs or drug combinations, including antibiotics, anticholinergics, antihistamines, mucolytics, leukotriene inhibitors and other medication classes, to treat diseases primarily managed by ENT and allergy specialists. We also intend to explore complementary drug, diagnostic or device technologies or products to make effective use of our commercial infrastructure. We also plan to evaluate strategic licensing, acquisition, development and commercial partnerships that could increase our commercial efficiencies.

- ***Explore business development activities for our EDS outside of the ENT and allergy segments.*** We are exploring the possibility of using our EDS to support nose-to-brain drug delivery. We are in the early stages of clinical development of OPN-300, which combines our EDS with oxytocin for the treatment of Prader-Willi syndrome and autism spectrum disorder. We are in preclinical development of OPN-021, which combines our EDS with orexin-A, for the treatment of narcolepsy or symptoms of other diseases potentially amenable to the same pharmacologic activity, such as Parkinson's disease.

We intend to evaluate business development activities to capture value through the continued development of these assets.

- ***Expand XHANCE into international markets.*** We have begun an initial assessment of the development and commercialization of XHANCE for markets outside the United States and plan to conduct further strategic evaluation of such markets now that XHANCE has been approved in the United States. We also intend to explore strategic collaboration opportunities in Europe and the rest of the world in order to maximize the commercial potential and the availability of XHANCE to patients.

Chronic Rhinosinusitis and Market Opportunity

Chronic Rhinosinusitis

Chronic rhinosinusitis is a serious nasal inflammatory disease significantly impacting patients' quality of life and daily functioning. Chronic rhinosinusitis, unlike allergic rhinitis, is characterized by chronic inflammation affecting tissues high and deep in the nasal passages, including the area where the openings from the sinuses normally ventilate and drain, causing symptoms that persist for a period of 8 to 12 weeks or longer. Chronic rhinosinusitis patients typically suffer from these symptoms four to six months a year, with symptoms often persisting for many years.

In medical literature and practice, chronic rhinosinusitis is commonly divided into two subgroups: chronic rhinosinusitis with nasal polyps and chronic rhinosinusitis without nasal polyps. Chronic rhinosinusitis patients with and without nasal polyps suffer from chronic inflammation of the lining of the deep nasal passages and sinuses. Patients with chronic rhinosinusitis with nasal polyps also develop non-cancerous polyps on these chronically inflamed surfaces, typically originating in the deep crevices or sinus cavities on both sides of the nose. We estimate that up to 10 million adults in the United States have chronic rhinosinusitis with nasal polyps. Both subgroups of chronic rhinosinusitis also share the same four defining diagnostic symptoms: nasal congestion/obstruction; facial pain and pressure; rhinorrhea, or runny nose, and postnasal drip; and loss of sense of smell and taste. Additional symptoms include headaches, chronic sleep problems, fatigue, frequent episodes of acute rhinosinusitis and mood disorders. There is evidence suggesting that the harm to a sufferer's quality of life from chronic rhinosinusitis, as measured in multiple domains, such as bodily pain, social functioning and mental health, is comparable to or worse than other serious diseases, including chronic obstructive pulmonary disease, congestive heart failure and angina. As a result, many patients eventually seek surgery for symptom relief.

Although the term chronic rhinosinusitis is often used in medical literature and medical practice, the FDA does not recognize chronic rhinosinusitis as a single indication for drug development purposes. Instead, the FDA recognizes chronic sinusitis, defined as inflammation of the sinuses with a duration longer than eight weeks, and nasal polyps, defined as non-cancerous polyps on the inflamed tissue of the nasal passages and sinuses, as separate indications for drug development purposes.

The American Academy of Otolaryngology-Head and Neck Surgery estimates that approximately 30 million adults in the United States have chronic rhinosinusitis, and it is estimated that up to 10 million adults have chronic rhinosinusitis with nasal polyps. Chronic rhinosinusitis imposes a significant healthcare burden on insurers and employers. The U.S. healthcare system spends approximately $60 billion annually in direct costs treating patients with chronic rhinosinusitis and its associated symptoms, including an estimated $5 billion on sinus surgeries. In the United States, physicians perform over 500,000 sinus surgeries each year, and we estimate that over seven million adults have undergone sinus surgery to treat chronic rhinosinusitis with and without nasal polyps. Chronic rhinosinusitis has been reported to account for an aggregate of 73 million restricted activity days per year. Additionally, people with chronic rhinosinusitis have been reported to be absent from work because of this disease 6.5% of the time and to suffer a 38% loss of productivity.

Our U.S. Market Opportunity

We estimate that approximately 9.75 million chronic rhinosinusitis patients are currently being treated in physician offices in the United States. We derived this estimate from a large patient claims database that reflects actual treatment patterns of chronic rhinosinusitis over a two-year period from 2010 to 2012. We also estimate that approximately 10,000 ENT and allergy specialists, as well as approximately 5,000 high-decile INS-prescribing primary care physicians, treat approximately 36% of all chronic rhinosinusitis patients in the United States, or approximately 3.5 million patients, an estimated 1.2 million of whom have chronic rhinosinusitis with nasal polyps. In accordance with multiple published clinical practice guidelines, physicians typically medically manage chronic rhinosinusitis patients by prescribing INS despite the fact that there are no FDA-approved products for the treatment of chronic sinusitis without nasal polyps. We initially intend to target approximately 15,000 physicians in the specialty segment. If we obtain the follow-on indication for chronic sinusitis, we intend to broaden our marketing outreach to additional primary care physicians that treat an additional estimated 6.25 million U.S. patients with chronic rhinosinusitis, an estimated one-third of whom have chronic rhinosinusitis with nasal polyps. We may also direct promotional resources to an additional estimated 20 million people who are not regularly under the care of physicians for this disease using programs such as direct-to-consumer and direct-to-patient promotion.

Based on internal estimates, we believe the total annual U.S. market opportunity for XHANCE in the specialty segment is over $3.4 billion, of which approximately one-third consists of patients with chronic rhinosinusitis with nasal polyps. Based on these same estimates, we believe the total additional annual U.S. market opportunity for XHANCE in the primary care segment is over $6.0 billion, of which approximately one-third consists of patients with chronic rhinosinusitis with nasal polyps. Therefore, we estimate the total annual U.S. market opportunity for the combined specialty and primary care segments is over $9.5 billion, of which approximately one-third consists of patients with chronic rhinosinusitis with nasal polyps.

Treatment Landscape

The treatment of chronic rhinosinusitis with and without nasal polyps typically begins with medical management. In cases where patients remain symptomatic despite medical management, physicians often recommend various forms of sinus surgery to help restore normal sinus ventilation and drainage. The following is a brief description of the current and potential future treatment landscape for chronic rhinosinusitis with and without nasal polyps:

Current Therapies

- ***Intranasal Steroids.*** Multiple published clinical practice guidelines generally recommend topically-acting INS as the first line of prescription therapy for the treatment of chronic rhinosinusitis with and without polyps. As a result, physicians typically prescribe INS nasal sprays or nasal aerosols despite the fact that there are no FDA-approved products for the treatment of chronic sinusitis without nasal polyps. Therefore, the majority of chronic rhinosinusitis sufferers being treated have tried INS. We estimate that physicians in the United States prescribe approximately 17 million INS prescriptions each year for the treatment of chronic rhinosinusitis. Nasonex, or mometasone furoate nasal spray, is currently the only other INS approved by the FDA for the treatment of nasal polyps. Physicians not only prescribe INS as a standalone therapy, but also typically prescribe INS following sinus surgery as some third-party clinical trials suggest that INS treatment can improve symptoms and delay symptom recurrence.

- ***Oral steroids.*** Physicians may prescribe oral steroids on an episodic basis to patients who have not received sufficient symptomatic relief from INS. Oral steroids are often effective at treating the underlying inflammation associated with the disease and reducing postoperative scarring, but the benefit is temporary. As inflammation returns, many patients resume INS therapy.

- ***Other medical management.*** Physicians commonly employ a variety of other non-surgical treatments in the medical management of chronic rhinosinusitis, including nasal saline rinses, multi-week courses of antibiotics, leukotriene antagonists, decongestants, aspirin desensitization and antifungals. The recognized limitations of drug deposition with current INS cause some physicians to seek out alternative treatment regimens, such as high doses of locally compounded liquid budesonide in high-volume nasal rinses. Chronic rhinosinusitis is one of the most common reasons for adult outpatient antibiotic use in the United States, comprised of approximately 37 million prescriptions per year.

- ***Sinus surgery and other procedures.*** Physicians generally recommend surgical treatment of chronic rhinosinusitis with and without nasal polyps only after patients fail medical management. The primary surgical alternative is ESS, which attempts to open the sinus drainage pathways while preserving as much bone and sinus tissue lining as possible. The physician typically uses rigid steel instruments and powered cutting tools to remove inflamed tissue, including any nasal polyps, and underlying bone to create a larger passage through the nasal anatomy to the sinuses. At the conclusion of the procedure, patients often have their nasal passages packed with a material that acts as a spacer to prevent surgical adhesions and control bleeding. Patients typically require one or more follow-up debridement treatments in which the physician may remove more tissue, crusting, scabs or scar tissue at the area of surgery in order to keep the sinus drainage pathway open and promote proper healing.

Several companies have developed less invasive technologies for the treatment of chronic rhinosinusitis since the introduction of ESS, such as balloon sinus dilation devices and steroid-releasing sinus implants. Balloon sinus dilation employs a high pressure inflated balloon to open blocked sinus pathways to increase ventilation and mucus drainage. Steroid-releasing sinus implants are used to hold open the surgically enlarged sinus, while releasing a steroid over a period of time in order to reduce postoperative sinus inflammation and scarring.

Potential Future Therapies

Several biologic monoclonal antibodies, some of which are already approved for other indications, are being developed for the treatment of nasal polyps, and are believed to inhibit specific pathways of inflammation present in nasal polyps. These biologic monoclonal antibodies include omalizumab, reslizumab, mepolizumab and dupilumab.

Limitations of Therapies

The current and potential future therapies to treat patients suffering from chronic rhinosinusitis with and without nasal polyps have a number of limitations, including:

- ***Limited efficacy of INS treatments using traditional nasal sprays and nasal aerosols.*** Although steroids are generally pharmacologically effective, conventional INS, including nasal sprays and nasal aerosols, are unable to effectively and consistently place the steroids onto the primary site of inflammation and nasal polyp origin, high and deep in the nasal passages. These products deposit a majority of the drug in the front of the nose or on the floor of the nasal passages, reducing their effectiveness and leaving many patients without sufficient symptomatic relief.

- ***Short-term benefits of oral steroids outweighed by significant side effects.*** Oral steroids offer only temporary benefit and are limited by the risk of significant systemic side effects associated with both short- and long-term use. These side effects include, among others, weight gain; increased risk of infections; loss of bone mineral density; death of bone tissue; cataract formation; glaucoma; adrenal suppression; and psychiatric complications, including mania, depression, and psychosis.

- ***Varying degrees of efficacy with other medical management.*** Other non-surgical treatments have varying degrees of supporting data and efficacy. In addition, high-volume steroid nasal rinses are difficult to administer, can be costly, may risk systemic side effects due to the absorption of the steroid into the body, can be associated with fluid draining from the nose after the procedure and are difficult for patients to comply with over prolonged courses of outpatient therapy.

- ***Sinus surgery and other procedures are costly and may not be a complete solution.*** The effectiveness of sinus surgery varies significantly and many patients experience persistent or recurrent symptoms. Reports have shown that nasal polyp regrowth following surgery occurs in as high as 60% of cases within four years. Because sinus surgery is not curative and also does not address the underlying cause of the inflammation, many patients require short- and long-term courses of INS after surgery and approximately 20% of patients elect surgical revisions. Postoperative scarring and persistent inflammation are common and can compromise symptom outcomes and also negatively impact the ability of the sinuses to heal. Sinus surgery is also a costly procedure, with estimated costs ranging from $8,500 to $16,000 per procedure. While balloon sinus dilation has the ability to open sinuses in a less invasive manner, it also does not address the underlying cause of the inflammation associated with chronic rhinosinusitis and is costly. Similarly, steroid-releasing sinus implants have limited duration of anti-inflammatory effect, are costly and face reimbursement challenges.

- ***Potential future biologic monoclonal antibodies treatment may be costly, difficult to administer or have negative side effects.*** The risks and benefits associated with the use of biologic monoclonal antibodies for the treatment of nasal polyps are not yet fully established. We expect the use of biologic monoclonal antibodies for the treatment of nasal polyps to be costly, with estimated costs of approximately $35,000 per year based on the doses being studied in nasal polyps and the current costs per dose in other indications. These drugs also require subcutaneous injections or intravenous administration that require frequent physician office visits. We believe the systemic nature of these treatments, which target components of the immune response, may result in more adverse side effects than treatments with topically-acting steroids.

Our Solution

XHANCE

XHANCE combines our EDS with a liquid formulation of fluticasone propionate, a potent, well-characterized, second-generation anti-inflammatory corticosteroid for the treatment of serious nasal diseases characterized by chronic inflammation, such as chronic rhinosinusitis. XHANCE is designed to deliver fluticasone propionate into the high and deep regions of the nasal passages where nasal polyps or inflamed and swollen membranes can obstruct normal sinus ventilation and drainage. On September 18, 2017, the FDA approved our NDA for XHANCE for the treatment of nasal polyps in adults. We also plan to initiate additional clinical trials of XHANCE for the treatment of chronic sinusitis. Similar to our NDA for XHANCE for the treatment of nasal polyps, we believe we may also be able to use the FDA's Section 505(b)(2) regulatory pathway for potential U.S. approval for XHANCE for the treatment of chronic sinusitis.

We believe XHANCE could become a part of the standard of care for the treatment of patients with chronic rhinosinusitis with and without nasal polyps before they progress to more costly treatment alternatives for the following reasons:

- ***High patient dissatisfaction with current INS treatments.*** In a market research study that we commissioned, we surveyed 438 patients with chronic sinusitis with and without nasal polyps. In this study, approximately 80% of the patients reported being frustrated with the symptom relief offered from their current INS medication and approximately 90% of the patients reported they would be interested in using a new product if it would improve symptom relief.

- ***Strong physician interest in XHANCE product profile.*** We surveyed approximately 700 physicians, consisting of 400 ENT and allergy specialists and 300 primary care physicians that currently treat patients with chronic sinusitis with and without nasal polyps. Approximately 75% of these physicians, including both specialists and primary care physicians, agreed, in part, that INS medications do not work well in patients with chronic sinusitis due to their belief that conventional INS do not sufficiently reach the high and deep regions of the nasal passages where inflammation occurs. In addition, 70% to 80% of these physicians reported that they would "definitely" or "probably" prescribe their patients a product with a clinical profile similar to XHANCE.

- ***Fluticasone propionate is the most widely-prescribed INS in the United States.*** XHANCE contains fluticasone propionate, a potent, well-characterized, second-generation, anti-inflammatory corticosteroid with a low bioavailability, meaning that only a small percentage of the drug is absorbed into the body. Corticosteroids provide multiple anti-inflammatory mechanisms of action and are used in forms such as pills, creams, inhalers and nasal sprays, to treat many sites of inflammation.

- ***XHANCE was designed to overcome the limitations of current INS therapies by delivering medication high and deep in the nasal passages***. In multiple studies utilizing advanced imaging, our EDS produced a differentiated pattern of drug delivery with significantly more drug deposited at the primary site of inflammation high and deep in the nasal passages where nasal polyps or inflamed and swollen membranes produce nasal symptoms and can obstruct normal sinus ventilation and drainage.

- ***Strong clinical data demonstrating safety and efficacy.*** In two randomized, double-blinded, placebo-controlled Phase 3 pivotal clinical trials evaluating adult patients with nasal polyps, we met our co-primary endpoints of statistically significant reductions of nasal congestion/obstruction symptoms and total polyp grade. XHANCE also produced treatment benefits in all four defining symptoms of chronic rhinosinusitis, as well as in polyp elimination, quality of life, need for sinus surgery and patient global impression of change. In two supportive open-label Phase 3 clinical trials evaluating approximately 900 patients with symptoms of chronic sinusitis with and without nasal polyps for a period of up to one year, XHANCE was generally well tolerated. In these supportive trials, we observed comparable symptom improvements in patients with and without nasal polyps and continuing incremental polyp reduction and symptom improvement through 12 months.

- ***XHANCE is easy to use.*** In a market study that we commissioned, 98% of patients reported that XHANCE was easy to use after four weeks of use and 93% stated the ease of use was comparable to other INS.

- ***Potential for broad payor access.*** In a market research study that we commissioned, we surveyed 26 health insurance plans representing over 150 million covered lives. Most payors reacted positively to a profile of XHANCE with respect to its product design, mechanism of action and efficacy results based upon our clinical data. This research further suggested that market access for XHANCE will be dependent on XHANCE's pricing. A majority of payors surveyed in our study indicated that they do not intend to actively manage INS products priced below a certain dollar threshold and many surveyed payors indicated that they would provide access without prior authorization to INS products priced within a certain dollar range. The surveyed payors reported the following potential coverage based on the XHANCE profile: (i) no step edits on plans covering approximately 27% of commercial lives, meaning that payors would not require patients to use generic INS before seeking reimbursement for XHANCE, (ii) a single step edit on plans covering approximately 48% of commercial lives, (iii) a prior authorization requirement on plans covering approximately 10% of commercial lives and (iv) no coverage by plans covering approximately 15% of commercial lives. In addition to this market research study, we obtained formulary data for INS from various sources representing approximately 159 million covered lives. These data indicate that health insurance plans covering 84% of commercial lives do not require prior authorization in the INS category for contracted products. We are also engaging payors to secure broad market access for XHANCE in the commercial segment by targeting Tier 3 payor coverage, single step edit with no prior authorization. This level of coverage indicates that payors would require patients to use a generic INS as a first step in treating their disease prior to the payor covering XHANCE. However, such coverage would not require the prior authorization of the payor. Tier 3 payor coverage requires a patient co-pay that is higher than that required for generics or drugs within a payor's formulary. We also intend to potentially contract with Medicare to accelerate physician adoption of XHANCE.

- ***Cost-Effective Solution.*** We intend to price XHANCE comparably to branded INS that are currently approved to treat nasal polyps. We believe XHANCE will offer a cost-effective, clinical benefit to payors that will reduce the perceived need for multiple step-edits and prior authorizations, which we believe will increase the likelihood of successful commercial adoption of XHANCE.

Our EDS

Our exhalation delivery systems enable the development of drug-device combination products intended for self-administration. We have developed both a liquid delivery system and a powder delivery system utilizing natural functional behaviors of the upper nasal airways to offer better drug deposition. These systems are designed to overcome many limitations inherent in conventional nasal spray and nasal aerosol delivery systems, most notably, enabling higher and deeper intranasal drug delivery.

Liquid EDS

The liquid EDS depicted below, which is the EDS used in XHANCE, consists of a primary drug container for the liquid drug formulation and an amber glass vial which are sealed by a crimp-fitted metering spray pump and enclosed within a proprietary liquid delivery subassembly. The nasal spray applicator, which is a component of the subassembly, is attached to the pump and extends to the top of the nosepiece of the liquid delivery subassembly. The EDS includes a flexible mouthpiece and an asymmetrically-shaped nosepiece as part of a mechanism that uses the patient's exhaled breath to naturally seal closed the soft palate and to facilitate delivery of drug to the nasal passages through the sealing nosepiece. The nosepiece is designed to create a seal with the nostril and also to expand and stent the upper part of the nasal valve, which is an important anatomical structure that is the narrowest part of the entire respiratory tract and a barrier that causes most medication delivered by conventional INS to deposit in the front part of the nose.

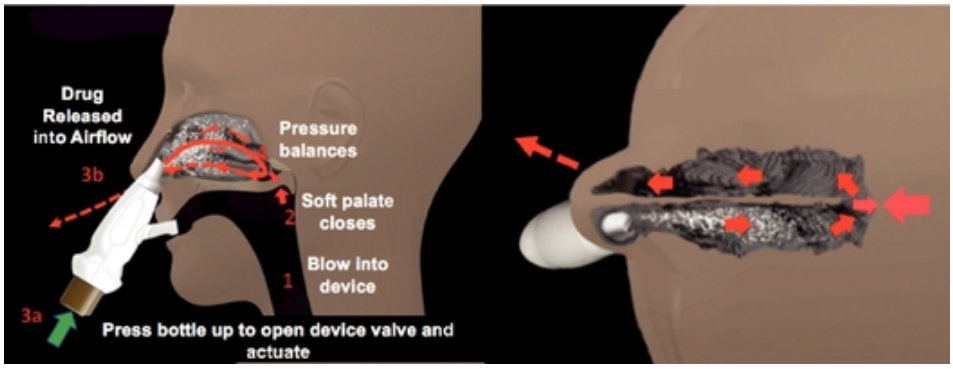
Powder EDS

The powder EDS depicted below, which is the EDS used in Onzetra Xsail, consists of a reusable device body incorporating a flexible mouthpiece to adjust to individual anatomic variations, and a white button piercing assembly to pierce the medication capsule. Disposable nosepieces are provided in a foil pouch to be inserted into the drug delivery device body. Each pre-filled nosepiece section contains a medication capsule containing a dry powder formulation and a clear release tab. The capsule is pierced by pressing and releasing the white button piercing assembly. The flexible mouthpiece and an asymmetrically-shaped nosepiece are part of the mechanism that uses the patient's exhaled breath to naturally seal closed the soft palate and to facilitate delivery of drug to the nasal passages through the sealing nosepiece. The medication capsule is intended for single dose administration and is not refillable or removable from the nosepiece.

Following drug administration, the disposable nosepiece, including the dose-expended medication capsule, is then removed and discarded.

How our EDS works

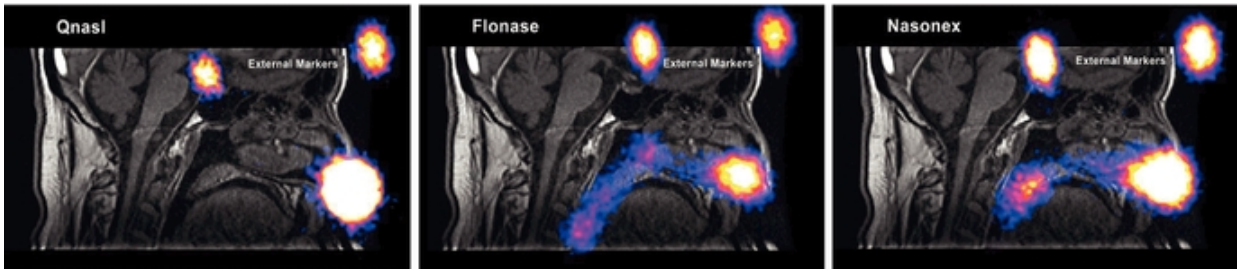
When exhaling into an EDS, the soft palate automatically elevates and creates an air-tight seal separating the nasal cavity from the throat and lungs. This natural action is the same as that which prevents air from escaping from the nose when trying to blow up a balloon or blow a trumpet. The exhaled air is then routed through the EDS which introduces medication into the air flow and then directs the air and medication through the sealing nosepiece. The positive air pressure, which is the opposite of the negative pressure produced by sniffing with ordinary nasal sprays, acts to dynamically expand the nasal valve and the narrowed nasal passages, helping to "float" the drug around obstructing anatomic barriers and fill one side of the nasal cavity. This enables high and deep deposition of medication in the nasal passages. The positive air pressure, proportional to the pressure on the other side of the soft palate, helps to open a passage between the two sides of the nasal cavity, behind the back edge of the nasal septum. The picture below illustrates this action, which allows the exhaled air pressure to escape from the opposite nostril.



The drug delivery mechanism of our EDS is designed to overcome the drug deposition shortcomings of conventional nasal sprays and nasal aerosols. In conventional nasal sprays and nasal aerosols, the medication is inhaled or sniffed into the nose creating negative pressure within the nasal passages, which does not facilitate the expansion of the nasal valve or the nasal passages and may obstruct the drug from reaching deep into the nose where most nasal polyps and inflamed and swollen sinus membranes exist.

The pattern of drug deposition produced by conventional nasal sprays and our EDS has been evaluated in multiple studies using a combination of advanced imaging modalities to depict the regions of the nasal passages where drug is deposited after administration in human volunteers. In an open label, crossover

study conducted by a third party in nine patients with allergic rhinitis, investigators examined the nasal deposition of radio-labeled materials that allow for traceability following use of Qnasl (HFA-beclomethasone, nasal aerosol), Flonase (fluticasone propionate, nasal spray) and Nasonex (mometasone furoate monohydrate, nasal spray). In this study, gamma cameras were used to capture emitted radiation from these tracers to create two-dimensional images in a similar process to the capture of x-ray images. These gamma images were merged with magnetic resonance images, or MRI, to quantify regional deposition within the nasal passages. The images below illustrate how the pattern of drug deposition in the nasal passages produced by Qnasl, Flonase and Nasonex was concentrated in the front and lower regions of the nasal passages, as opposed to the high and deep regions of the nasal passages targeted in the treatment of chronic rhinosinusitis.



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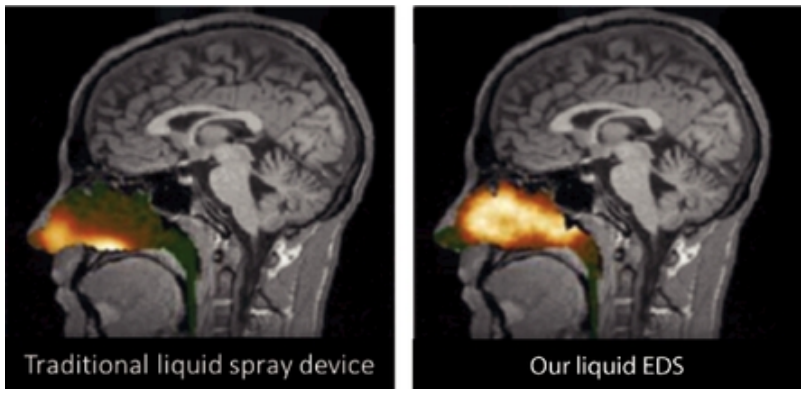
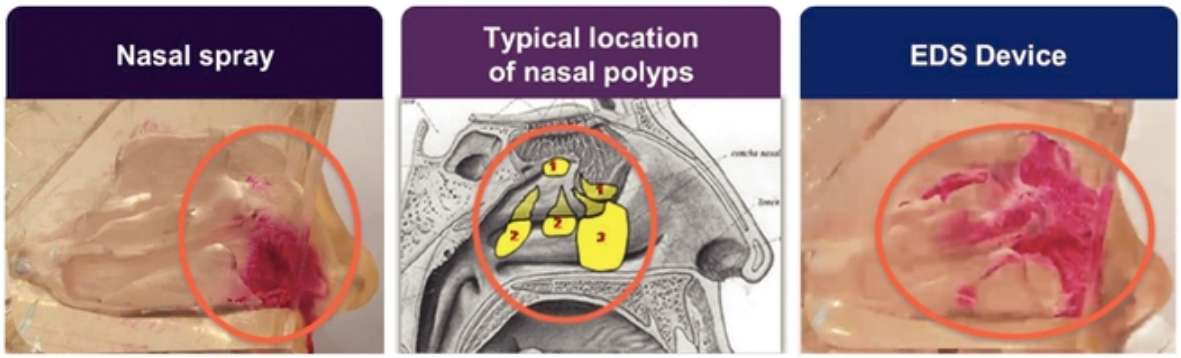
We conducted six deposition studies evaluating 53 subjects that produced approximately 250 images. As depicted in the representative figures below, our EDS produced a differentiated pattern of drug delivery with significantly more drug deposited in the high and deep regions of the nasal passages.



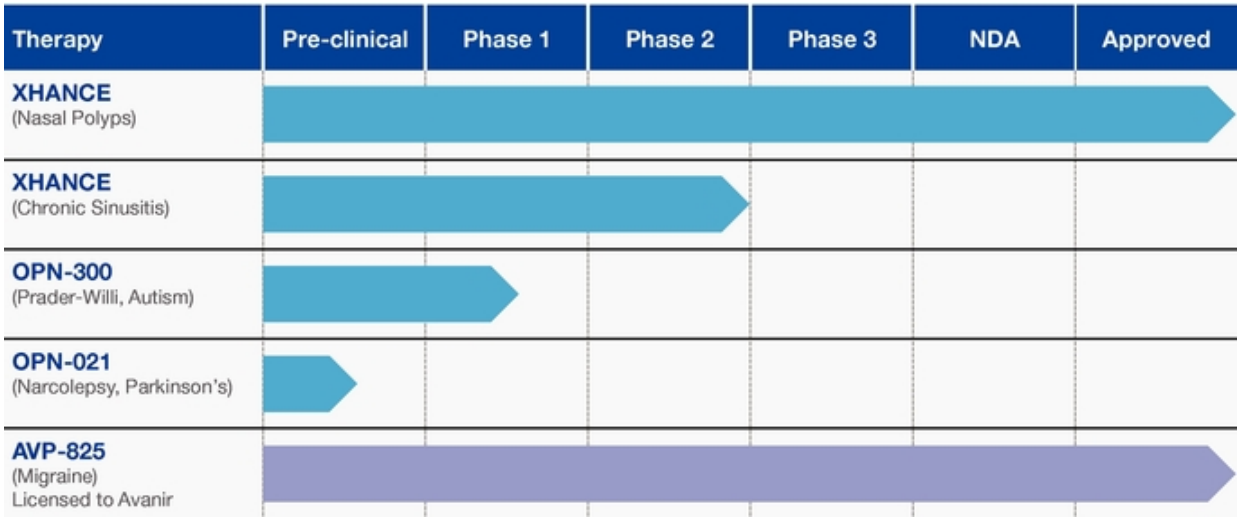
The pictures above use gamma camera image information, which was then superimposed on the corresponding MRI section. These images represent deposition in the two minutes after delivery using a traditional liquid nasal spray and a version of our liquid EDS device. Deposition with traditional liquid nasal spray was greatest in the front parts of the nose, whereas deposition with our EDS was greatest in the high and deep regions of the nose.

The pictures below illustrate how our EDS places medication higher and deeper in the nasal passages. As depicted below, although conventional nasal spray systems can reach, and therefore treat, large nasal polyps, they are not suitable for reaching nasal polyps or inflammation in the higher and deeper regions where obstruction of the sinus openings occurs.



Our EDS is also designed to address user dissatisfaction with standard nasal delivery by reducing drug drip-out from the front and back of the nose and the bad taste that often accompanies drug entering the throat. By reducing the loss of drug to non-targeted sites, such as the gastrointestinal tract by swallowing, or lungs, our EDS has the potential to improve the efficiency of drug activity and to improve tolerability by reducing off-target effects.

Our Pipeline



XHANCE for Chronic Sinusitis

We plan to initiate additional clinical trials of XHANCE in the second half of 2018 to seek a follow-on indication for the treatment of chronic sinusitis. We believe XHANCE would be the first drug therapy product approved for the treatment of chronic sinusitis. Upon approval, we intend to broaden our commercialization efforts to target primary care physicians that we believe treat an additional estimated 6.25 million U.S. patients with chronic rhinosinusitis, an estimated one-third of whom have chronic rhinosinusitis with nasal polyps. If we obtain approval for this indication, we may also direct promotional resources to an additional estimated 20 million adults who are not regularly under the care of physicians for this disease using programs such as direct-to-consumer and direct-to-patient promotion.

Other Product Candidates

Although our initial focus is to prioritize the development of XHANCE in the ENT and allergy specialty segments, we have applied our EDS to other product candidates in our pipeline across a broad range of disease areas. By placing drug high and deep in the nose, in regions where cranial nerves connect directly with the brain, we believe it may be possible to deliver medications directly into the brain and avoid the difficulties of getting drug past the blood-brain barrier. This may enable treatment of brain diseases using small or large molecules that otherwise do not readily enter the nervous system.

OPN-300

We have engaged in early clinical development activities for OPN-300, which combines our EDS with oxytocin. Oxytocin is a small, naturally occurring peptide currently used to stimulate lactation in breastfeeding women. Oxytocin acts as a neurotransmitter in the brain and has recently been considered a potential novel treatment alternative in several brain disorders due to a growing body of evidence of its critical role in social cognition and behavior. Because oxytocin is a peptide with poor oral bioavailability, nasal administration with our EDS may allow for improved delivery. With standard liquid nasal spray delivery, only a small amount of the drug reaches systemic circulation. It is estimated that less than 0.01% of oxytocin in the blood enters the brain across the blood-brain barrier.

OPN-300 is being developed to target two orphan indications: Prader-Willi syndrome, a rare genetic disorder that is the leading genetic cause of obesity; and autism spectrum disorder. We conducted a Phase 1 clinical trial in late 2013 using OPN-300 in healthy volunteers. In that trial, a low dose of oxytocin delivered using our EDS produced a statistically significantly greater social-cognitive effect as measured with functional magnetic resonance imaging, performance on cognitive tests, and physiological markers, than intravenous administration of the same active ingredient that produced blood levels that were not statistically different. We believe this clinical trial supports the possibility of direct nose-to-brain activity of medication delivered using our EDS. We recently completed a second pilot clinical trial of OPN-300 in adult male patients with autism spectrum disorder. In that trial, adult men with autism spectrum disorder receiving nasal oxytocin showed statistically significant differences in interpretation of facial expressions. We are preparing for additional clinical development activities in pursuit of an indication for Prader-Willi syndrome.

OPN-021

We are in preclinical development of OPN-021, which combines our EDS with orexin-A, also known as hypocretin-A, a peptide that acts as a neurotransmitter in the brain. OPN-021 is being developed for the treatment of narcolepsy or symptoms of other diseases potentially amenable to the same pharmacologic activity, such as Parkinson's disease. Narcolepsy is a chronic neurodegenerative disease caused by a deficiency of orexin-producing neurons in the lateral hypothalamus region of the brain. It is clinically characterized by excessive daytime sleepiness, sudden and uncontrollable muscle weakness or paralysis and by intrusions into wakefulness of physiological aspects of rapid eye movement sleep. We are in the process of developing the formulation for OPN-021 and are planning to initiate a Phase 1 clinical trial when a suitable formulation is prepared.

Other

We are evaluating the use of our EDS to deliver other drugs or drug combinations, including antibiotics, anticholinergics, antihistamines, mucolytics, leukotriene inhibitors and other medication classes used to treat diseases primarily managed by ENT and allergy specialists. We have also identified several other product candidates with the potential to leverage our EDS to create clinically differentiated drug treatments for indications such as central nervous system disorders and pain. We will continue to evaluate opportunities to develop product candidates indicated for markets outside of our ENT and allergy focus through business development activities.

Our Commercial Strategy

We are implementing our commercial strategy for XHANCE to focus on the following three phases of penetrating the chronic rhinosinusitis markets and become part of the standard of care treatment:

- ***Efficient entry in the ENT and allergy specialty segments:*** We are initially planning to deploy an efficient, specialty-focused, go-to-market commercialization model to launch XHANCE. Initially, we intend to engage a dedicated specialty sales force to promote XHANCE to a defined prescriber base consisting of approximately 10,000 ENT and allergy specialists comprised of approximately 6,400 offices, as well as approximately 5,000 high-decile INS-prescribing primary care physicians. We believe these physicians treat an estimated 3.5 million chronic rhinosinusitis patients, an estimated 1.2 million of whom have chronic rhinosinusitis with nasal polyps. We expect our sales force will initially consist of approximately 75 representatives.

- ***Facilitate broader adoption:*** We intend to pursue a follow-on indication of XHANCE for the treatment of chronic sinusitis. Upon approval for the follow-on indication, we intend to broaden our commercialization efforts to target primary care physicians that we believe treat an additional estimated 6.25 million U.S. patients with chronic rhinosinusitis, an estimated one-third of whom have chronic rhinosinusitis with nasal polyps. We may target these physicians through a commercial partnership.

- ***Activate patient demand:*** If we obtain approval for this indication, we may also direct promotional resources to an additional estimated 20 million U.S. people who are not regularly under the care of physicians for this disease using programs such as direct-to-consumer and direct-to-patient promotion.

We intend to efficiently launch XHANCE into the ENT and allergy segments by utilizing the following strategies:

- ***Define a clear patient type for XHANCE.*** We intend to focus on moderate-to-severely symptomatic patients who have not achieved satisfactory results with currently available INS.

- ***Establish a compelling brand position in the medical continuum of care.*** In an effort to establish our brand position within the continuum of care, we intend to, among other things, educate physicians, payors and patients on XHANCE's unique mechanism of action and differentiated efficacy profile.

- ***Develop a meaningful payor-friendly value proposition.*** We intend to establish a meaningful value proposition for physicians, payors and patients by highlighting the potential for XHANCE to reduce or delay the need for surgical intervention, reduce antibiotic prescribing and increase patient satisfaction with treatment outcomes.

- ***Drive awareness, adoption and access.*** We are engaging with physicians and payors to educate both constituencies about XHANCE and its benefits, with the goal of securing broad market access by the time of launch in the second quarter of 2018.

    - **Physicians:** We intend to utilize a contract clinical nurse educator team to target ENT and allergy specialists to (i) increase awareness about XHANCE within our specialty audience, (ii) familiarize healthcare professionals on the proper administration of XHANCE, (iii) identify patients who will be ready to initiate therapy with XHANCE when available and (iv) enroll physicians and patients in programs designed to support demand for XHANCE.

    - **Payors:** We are engaging with payors prior to launch with the objective of securing broad market access in the commercial segment by targeting Tier 3 payor coverage, single step edit with no prior authorization. Specifically, we plan to target pharmaceutical benefit managers, national plans and regional plans representing, in the aggregate, up to approximately 160 million of the estimated 191 million U.S. covered commercial lives.

    - **Patients:** We plan to build a patient and physician support infrastructure in an effort to accelerate physician adoption and reduce the risk of patient abandonment during the fulfillment process. We expect that this infrastructure may include (i) patient samples, (ii) a

co-pay assistance program to enable enrollment at the pharmacy for patients who have commercial coverage, (iii) a sample voucher program, (iv) savings cards for cash payors, (v) reimbursement support programs for the retail channel, (vi) a "specialized" distribution channel to assist patients with the complexities of the payor landscape and (vii) a patient assistance program to provide access to XHANCE to people who have no or inadequate insurance.

XHANCE Clinical Development

Overview

We have evaluated XHANCE in the following five clinical trials comprised of over 1,500 patients:

- two randomized, double-blinded, placebo-controlled Phase 3 pivotal clinical trials designed to compare the safety and efficacy of XHANCE to a placebo EDS in adults with bilateral nasal polyps, which we refer to as NAVIGATE I and NAVIGATE II or collectively, our pivotal clinical trials;
- two open-label Phase 3 clinical trials to evaluate the safety of XHANCE in adults with symptoms of chronic sinusitis with or without nasal polyps, which we refer to as EXHANCE-3 and EXHANCE-12 or collectively, our supportive clinical trials; and
- one Phase 1, open-label, randomized, single-dose, bioavailability study to compare the bioavailability of fluticasone propionate from XHANCE to Flonase and Flovent HFA in healthy patients and patients with mild-to-moderate asthma.

Clinical Trial Highlights

Our Phase 3 clinical development program included a population of patients generally reflective of our intended patient population, with approximately 90% having previously tried currently available INS and almost one-third having previously undergone sinus surgery. Key results from our Phase 3 clinical trial program include:

- In our pivotal clinical trials, XHANCE produced statistically significant benefits on both of the co-primary endpoints: a reduction of nasal congestion/obstruction symptoms at week 4 and a reduction in total polyp grade at week 16.
- Patients with nasal polyps generally experienced greater improvements in symptoms and reductions in polyp grade with longer duration of use.
- In our pivotal clinical trials, approximately 16% of patients treated with XHANCE had nasal polyps eliminated in at least one nostril after 16 weeks of treatment, and approximately 27% had nasal polyps eliminated in at least one nostril after an additional eight weeks of treatment. In our supportive clinical trials, we observed complete response rates in at least one nostril of 48% of patients in EXHANCE-3 and 47.1% of patients in EXHANCE-12.
- In our pivotal clinical trials, XHANCE produced improvement across all four defining symptoms of chronic rhinosinusitis.
- Over 85% of patients receiving XHANCE across our pivotal clinical trials reported improvement, and approximately two-thirds reported being "much" or "very much" improved, compared to approximately one-third of patients in the placebo EDS group. In our supportive clinical trials, approximately 70% of patients with symptoms of chronic sinusitis, both with and without nasal polyps, reported that they were "much" or "very much" improved after treatment with XHANCE.
- On a Sinonasal Outcome Test-22, the improvement with the 186- and 372-microgram, or mcg, doses of XHANCE was superior to the placebo EDS in both NAVIGATE I and NAVIGATE II. The magnitude of improvement associated with treatment with XHANCE was approximately 20 points. Although cross-trial comparisons have significant limitations and must be interpreted with caution, in a previous third-party study evaluating a large cohort (n=1468) of patients who were underwent sinus surgery, the degree of change on this outcome measure was approximately 18 points.

- After 12 months of treatment with XHANCE in our supportive clinical trials, at least 50% of patients had a Sinonasal Outcome Test-22 score that was at or below 9.3, which is the average score that has been reported for healthy individuals.

- XHANCE was well tolerated and had an adverse event profile generally similar to that observed in several comparably designed third party studies, including those of mometasone furoate in nasal polyps patients and of fluticasone propionate formulations in polyposis and allergic rhinitis patients.

Phase 3 Pivotal Clinical Trials (NAVIGATE I and NAVIGATE II)

We have conducted two independent but comparable randomized double-blinded, placebo controlled Phase 3 clinical trials to examine the safety and efficacy of XHANCE versus a placebo EDS in adults with bilateral nasal polyps and moderate nasal congestion/obstruction. These clinical trials, which we refer to as NAVIGATE I and NAVIGATE II, also provided dose-ranging information to support the selection of clinically appropriate dose(s) for commercialization of XHANCE and served as pivotal clinical trials in our NDA for the treatment of adults with nasal polyps. These pivotal clinical trials were conducted in the United States, Canada, South Africa and several European countries.

Study Design

Each pivotal clinical trial included a single-blind EDS-placebo lead-in and a placebo EDS control group, a multi-center, multi-national study population to increase generalizability, an assessment of the efficacy of multiple doses (93, 186 or 372 mcg twice daily) over a 16-week period and experts in nasal endoscopy to assess objective efficacy outcomes and adverse events, or AEs, in all patients. Patients who completed the double-blinded phase of the pivotal clinical trials were allowed to continue in an open-label extension phase in which all patients received 372 mcg of XHANCE twice daily for up to eight additional weeks. All patients and investigators remained blinded to the original treatment during the open-label phase, allowing for a comparison of as-randomized initial treatments through the end of the open-label extension phase at week 24. We treated a total of 646 adults across both pivotal clinical trials with 568 adults completing the open-label extension phase.

Each of NAVIGATE I and NAVIGATE II had co-primary endpoints of (i) change in subjective nasal congestion/obstruction symptoms from baseline to week 4 and (ii) change in objectively-measured total (bilateral) nasal polyp grade from baseline to week 16. The severity of nasal symptoms was recorded by patients in an electronic diary immediately before dosing in the morning (AM) and evening (PM), and was measured using 7-day average instantaneous AM diary scores. Total (bilateral) nasal polyp grading was assessed with nasoendoscopy and is based on polyp protrusion past certain anatomical landmarks. These grading assessments were performed at screening (baseline) and at weeks 4, 8, 12, 16 (which was the end of the double-blinded phase) and 24 (which was the end of the open-label phase) using a 0 to 3 point scale for each nostril, with 0 representing no polyps and 3 representing severe polyposis. The scores for each nostril were summed to yield a range of 0 to 6 for both nostrils.

These trials also evaluated several secondary endpoints, including the impact of XHANCE treatment on surgical eligibility and changes in the Sinonasal Outcome Test-22 score, which considers the core defining signs and symptoms of nasal polyps and the impact on functioning, quality of life and sleep. We also conducted a complete response analysis to evaluate the percentage of patients with a recorded nasal polyp grade of zero on at least one side of the nasal cavity.

Efficacy Results

The 186- and 372-mcg treatment groups achieved statistically significant reductions in the primary assessments of congestion severity at week 4 and reductions in polyp grade at week 16 relative to a placebo EDS. In NAVIGATE I, the differences from the placebo EDS generally increased with each increasing dose of XHANCE for both co-primary endpoints, meaning that administering higher doses to a patient led to a greater decrease in nasal congestion/obstruction symptoms and bilateral nasal polyp grade. In NAVIGATE II, the 186-mcg group achieved the largest numerical reduction in the primary assessment of congestion symptom severity, and the 372-mcg group achieved the largest numerical reduction in the primary

assessment of polyp grade. On average, patients in both pivotal clinical trials had moderate nasal polyps (with an average bilateral score of approximately 3.9) at baseline. Patients treated with 372 mcg had the largest mean change in polyp grade in each pivotal clinical trial, with decreases in grade after 16 weeks of 1.1 and 1.4 in NAVIGATE I and NAVIGATE II, respectively. There was also a consistent decrease in average polyp grade over time through 24 weeks.

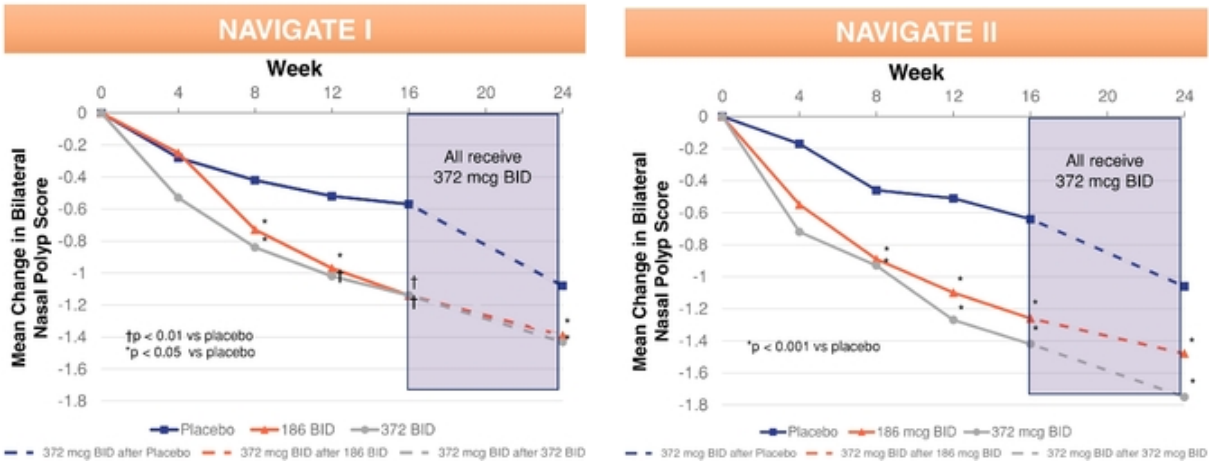
The following table summarizes the mean change in congestion scores in each of the pivotal clinical trials:

Mean Changes from Baseline in AM Congestion Score After 4 Weeks of Treatment in Adult Patients with Nasal Polyps

				Difference from Placebo EDS		
Treatment	**N**	**Baseline Score (Standard Deviation)**	**Mean (Standard Error) Change from Baseline**	**Mean**	**95% confidence interval**	**p-value[1]**
NAVIGATE I						
XHANCE 372 mcg	79	2.29 (0.44)	–0.62 (0.08)	–0.38	–0.57, –0.19	<0.001
XHANCE 186 mcg	80	2.24 (0.42)	–0.54 (0.08)	–0.30	–0.48, –0.11	0.002
Placebo EDS	82	2.31 (0.41)	–0.24 (0.07)			
NAVIGATE II						
XHANCE 372 mcg	82	2.25 (0.42)	–0.62 (0.07)	–0.38	–0.58, –0.18	<0.001
XHANCE 186 mcg	80	2.20 (0.37)	–0.68 (0.07)	–0.45	–0.65, –0.25	<0.001
Placebo EDS	79	2.29 (0.43)	–0.24 (0.07)			

(1) The p-value, or probability value, is a measure of statistical significance reflecting the likelihood that an observed result occurred by chance.

The following charts summarize the mean change in bilateral nasal polyps score in each of the pivotal clinical trials:



In addition to the co-primary efficacy endpoints described above, we also assessed a number of secondary endpoints in the pivotal clinical trials, including the following:

§ *Sinonasal Outcome Test-22.* In a Sinonasal Outcome Test-22, which broadly assesses the impact of nasal polyps on certain outcomes, including the symptoms of nasal polyps, functioning and quality of life, the change observed with the 186- and 372-mcg doses of XHANCE was superior to the placebo

EDS in both of the pivotal clinical trials. The magnitude of improvement associated with treatment with XHANCE was approximately 20 points.

- *Quality of Sleep.* A positive impact of XHANCE on sleep was shown for the 372-mcg dose in both pivotal clinical trials through the "Sleep" sub-scale of the Sinonasal Outcome Test-22 and, in NAVIGATE II, a positive effect was further shown across a number of the sub-scales of the MOS-Sleep-R, a validated set of measures commonly used in clinical studies to assess changes in sleep quality.

- *Defining Symptoms.* The 186- and 372-mcg treatment groups, in pooled data for NAVIGATE I and NAVIGATE II, achieved statistically significant improvement in all four of the core defining symptoms of nasal polyps at the end of the double-blinded phase.

- *Patient Global Impression of Change.* Patient global impression of change is a summary measure of treatment benefit from the perspective of the patient measuring their perception of improvement or worsening of their condition. At the end of the double-blinded phase, the percentage of patients who were improved was substantially higher with XHANCE compared with the placebo EDS. Of the patients receiving 186 or 372 mcg of XHANCE, 86% reported improvement combined across both pivotal clinical trials, and 65.9% reported being "much" or "very much" improved. A post-hoc analysis of a subgroup of patients in the NAVIGATE I and II trials who were using a marketed INS at the time of study entry showed similar results, with 65% of patients treated with 186 or 372 mcg of XHANCE reporting being "much" or "very much improved" after 16 weeks of treatment compared with 28% of patients treated with the placebo EDS.

- *Need for Surgery.* Surgical eligibility was assessed using standardized criteria defined prior to trial initiation. Surgery was not necessarily planned or pending for these patients. The proportion of patients considered eligible for surgery among the 186-mcg and 372-mcg dose groups combined across both pivotal trials was reduced by 54% after 16 weeks of treatment with XHANCE versus 36% with the EDS-placebo group and was reduced by approximately 64% after the additional eight weeks of active treatment with the 372-mcg dose.

- *Complete Response Analysis.* The polyp grading scale is neither linear nor a direct measure of polyp mass, making it difficult to interpret mean change scores. Therefore, we also performed a complete response analysis to evaluate the percentage of patients who had nasal polyps eliminated on at least one side of the nasal passages. The percentage of patients who had nasal polyps eliminated on at least one side of the nasal passages at the end of the double-blinded phase was 14.1% in the 186- and 372-mcg dose groups combined across both pivotal clinical trials, compared to 7.8% of placebo EDS recipients. By the end of 24 weeks, after all patients received up to an additional eight weeks of active treatment with the 372-mcg dose, the complete response rate was 17.3% in patients previously treated with the placebo EDS compared to 26.2% in patients who previously received XHANCE across the 186- and 372-mcg dose groups in both pivotal clinical trials.

Safety Results

XHANCE was generally well tolerated across the 186- and 372-mcg dose groups in NAVIGATE I and NAVIGATE II. The most commonly reported AEs in the active treatment groups in the pivotal clinical trials, which are shown in the table below, were associated with local effects at the site of administration in the nasal passages or associated with the underlying disease. Most local AEs were not spontaneously reported but were identified as a result of active monitoring of all patients at scheduled intervals by endoscopic nasal examination at each visit. The majority of these AEs were reported to be mild and were observed to resolve with continued use of XHANCE. A total of six patients in the pivotal clinical trials experienced a total of seven serious adverse events, or SAEs, only one of which, in a patient in the placebo group, was determined to be treatment-related. 5.0% of subjects treated with XHANCE 186 mcg twice daily and 1.2% of subjects treated with 372 mcg twice daily discontinued from the clinical trials prior to the open-label extension phase based of adverse reactions compared to 4.3% of subjects treated with placebo.

Summary of Adverse Events with XHANCE Reported in ³ 3% of Patients with Nasal Polyps and More Common Than Placebo EDS in Phase 3 Pivotal Clinical Trials

Adverse Event	Placebo EDS (N = 161) n (%)	XHANCE 186 mcg bid (N = 160) n (%)	XHANCE 372 mcg bid (N = 161) n (%)
Epistaxis[1]	4 (2.5)	19 (11.9)	16 (9.9)
Nasopharyngitis	8 (5.0)	3 (1.9)	12 (7.5)
Nasal septal ulceration[2]	3 (1.9)	11 (6.9)	12 (7.5)
Nasal congestion	6 (3.7)	7 (4.4)	9 (5.6)
Acute sinusitis	6 (3.7)	7 (4.4)	8 (5.0)
Headache	5 (3.1)	8 (5.0)	6 (3.7)
Pharyngitis	2 (1.2)	2 (1.3)	5 (3.1)
Nasal mucosal ulceration[2]	2 (1.3)	6 (3.8)	4 (2.5)
Nasal mucosal erythema	6 (3.7)	9 (5.6)	8 (5.0)
Nasal septal erythema	3 (1.9)	6 (3.8)	7 (4.3)

bid = twice daily.

N = number of patients; n = number of patients in subset.

1 Includes spontaneous adverse reaction reports.
2 Includes ulcerations and erosions

Phase 3 Open-Label Clinical Trials (EXHANCE-3 and EXHANCE-12)

We also conducted two supportive, open-label Phase 3 clinical trials in adults with symptoms of chronic sinusitis with or without nasal polyps. The supportive clinical trials, which we refer to as EXHANCE-3 and EXHANCE-12, were conducted in the United States with a primary objective to assess the safety of twice-daily intranasal administration of the 372 mcg dose of XHANCE in an expanded number of patients and over an extended period of time. We also assessed a variety of objective and subjective efficacy parameters, including an assessment of each patient's symptoms and functioning and qualification for surgical intervention.

Study Design

Eligibility for enrollment, endpoint and study design were similar in EXHANCE-3 and EXHANCE-12 with the exception of duration (3 months in the case of EXHANCE-3 and 12 months in the case of EXHANCE-12). Across both supportive clinical trials, a total of 898 adults were treated, including 762 adults with chronic sinusitis without nasal polyps and 136 adults with symptoms of chronic sinusitis with nasal polyps.

Safety Results

XHANCE was generally well tolerated. As shown in the table below, 59.2% of patients in the supportive clinical trials experienced at least one treatment-emergent AE, with the most common being similar to those in the XHANCE treatment groups of the pivotal clinical trials. The most common AEs were local (in the nose) and not systemic. Most AEs were mild and resolved with continued use of XHANCE. A total of 12 patients experienced a total of 14 SAEs in the supportive clinical trials, none of which were deemed treatment-related. Approximately 80% of patients completed the supportive clinical trials, with approximately 5% discontinuing due to an AE and 1% discontinuing for lack of efficacy.

Summary of Adverse Events Reported in ³ 3% of Patients in EXHANCE 3 AND EXHANCE 12

Adverse Event	XHANCE 372 mcg (N = 898) n (%)
Patients with at least 1 Adverse Event	532 (59.2)
Epistaxis[1]	73 (8.1)
Nasal mucosal disorder (erythema or ulceration not at the nasal septum)	109 (12.1)
Nasal septum disorder (erythema)	71 (7.9)
Nasal septum ulceration	53 (5.9)
Acute sinusitis	48 (5.3)
Upper respiratory tract infection	46 (5.1)
Headache	44 (4.9)
Nasal congestion	34 (3.8)
Cough	27 (3.0)

[1] Includes spontaneous adverse reaction reports.

Efficacy Results

Efficacy was also measured in EXHANCE-3 and EXHANCE-12. Key efficacy results from EXHANCE-3 and EXHANCE-12 included:

- On the Lund-Mackay scale, which is an endoscopic objective assessment of disease in the nasal passages, scores for edema, nasal discharge and nasal polyps decreased through up to 12 months of treatment, with similar benefits observed in patients who did or did not have nasal polyps at baseline. Among those patients entering the clinical trials with endoscopic evidence of edema within the nasal cavity, approximately 35% with polyps and 53% without polyps in EXHANCE-3 and 50% with polyps and 56% without polyps in EXHANCE-12 no longer had observable edema by the end of the study.

- Patients with nasal polyps experienced improvement in nasal polyp grades. As observed in the pivotal clinical trials, mean nasal polyp grading scale scores improved more with longer durations of treatment. In addition, the percentage of nasal polyp patients with a polyp grade of 0 on at least one side of the nose was 47.1% in EXHANCE-12 and 48.0% in EXHANCE-3 by the end of their participation in the study.

- Mean total Sinonasal Outcome Test-22 scores improved throughout both supportive clinical trials. After 12 months of treatment with XHANCE in our supportive clinical trials, at least 50% of patients had a score that was at or below 9.3, which is the average score that has been reported for healthy individuals.

Phase 1 Bioavailability Clinical Trial

We performed a Phase 1, open-label, randomized, single-dose, bioavailability clinical trial of XHANCE and Flonase in healthy patients and XHANCE and Flovent HFA in patients with mild-to-moderate asthma. We conducted the Phase 1 clinical trial to establish a bridge between XHANCE, which consists of our fluticasone propionate formulation combined with our EDS, and Flonase and Flovent HFA, the reference listed drugs for our NDA. We chose fluticasone propionate in part because it has limited absorption into the body. In our NDA, we relied in part on the FDA's previous findings of safety for Flonase and Flovent HFA, including non-clinical toxicology findings and findings of systemic safety risks related to hypothalamic-pituitary-adrenal, or HPA, axis suppression, which is a known side effect of corticosteroids. To do so, we were required to establish that the systemic exposure, or the amount of drug absorbed into the body, to fluticasone propionate following use of XHANCE did not exceed the exposure produced by Flovent HFA.

Study Design

Part one of the clinical trial was a three-way, three-treatment, three-sequence crossover study in healthy patients in which patients were randomized to a sequence containing the following treatments: 186 mcg (1 × 93 mcg to each nostril) of XHANCE; 372 mcg (2 × 93 mcg to each nostril) of XHANCE; and 400 mcg (4 × 50 mcg to each nostril) of Flonase. The primary objective of part one was to assess and compare the systemic exposure of a single dose of 186 mcg and 372 mcg of XHANCE with 400 mcg of Flonase in healthy patients. If one or both of the test doses resulted in a systemic exposure that was at least 125% of that of Flonase, then part two was to be conducted. Part two of the clinical trial was a two-way, two-treatment, two-sequence crossover study in mild-to-moderate asthmatic patients in which patients were randomized to a sequence containing the following: 372 mcg (4 × 93 mcg) of XHANCE and 440 mcg (2 × 220 mcg) of Flovent HFA. The primary objective of part two was to assess and compare the systemic exposure produced by a single dose of 372 mcg of XHANCE with 440 mcg of Flovent HFA in mild-to-moderate asthmatic patients. A total of 112 adults were examined across both parts of the clinical trial.

Results

In part one of the clinical trial, peak and total exposure to fluticasone propionate was higher following 372 mcg of XHANCE compared to 400 mcg of Flonase. Peak exposure to fluticasone propionate was also higher for 186 mcg of XHANCE than 400 mcg of Flonase, but total exposure was higher for 400 mcg of Flonase than 186 mcg of XHANCE. In part two of the clinical trial, doses of 372 mcg of XHANCE produced systemic exposure substantially lower than that of 440 mcg of Flovent HFA. In particular, peak plasma of the drug, or C_{max}, and the total amount of absorption, known as the area under the curve from time 0 to infinity, or AUC0-∞, were approximately 37% and 50% lower following administration of 372 mcg of XHANCE relative to 440 mcg of Flovent HFA, respectively. We believe these results support our use of Flonase and Flovent HFA as referenced listed drugs in our NDA for XHANCE.

Regulatory Exclusivity and Barriers to Entry

XHANCE benefits from substantial intellectual property and regulatory barriers to entry, including the following:

- ***Strong patent protection.*** Our XHANCE patent portfolio consists of nine issued U.S. patents expiring through 2030 and 12 U.S. patent applications that, if granted, would expire through 2034. We rely primarily on the protections afforded by device and method of use patents. Our issued U.S. patents and patent applications for XHANCE are based on our EDS, including the combination of this technology with fluticasone propionate.

- ***Complex drug-delivery system.*** We believe the unique features of our EDS, as well as its delivery of a topical-acting corticosteroid, affords us significant protection against generic competition, as well as against a potential 505(b)(2) NDA, that seeks to reference XHANCE in order to obtain approval for a therapeutically equivalent, substitutable competitor product. XHANCE, utilizing our proprietary EDS, presents human factors engineering complexities for drug-device combination products and chemistry, manufacturing and controls challenges unique to suspension and respiratory products. Any future substitutable generic entrant will need to have considerable combination product know-how to develop and validate a substitutable drug delivery device or technology to compete with our EDS.

- ***Clinical and regulatory complexity.*** We have conducted a clinical development program comprised of over 1,500 patients to support our NDA for XHANCE to treat nasal polyps, including human factors studies and Phase 3 clinical trial assessments evaluating and validating the use of our EDS. As with other drugs that primarily have local activity, we believe the regulatory pathway for products seeking approval as substitutable generic equivalents to XHANCE will be more complex and costly than the pharmacokinetic studies generally required for systemically-acting medications. We believe current FDA guidance for substitutable INS generally requires the demonstration of "clinical bioequivalence," which has caused developers to conduct non-inferiority clinical trials. Clinical trials in nasal polyps are different from those that have been performed to support approval of generic INS for allergic

rhinitis. We believe potential generic competitors to XHANCE must not only demonstrate efficacy versus placebo, but must also show equivalent efficacy and safety outcomes to establish clinical bioequivalence to XHANCE, requiring a significant amount of time and capital investment and presenting clinical development uncertainties.

- ***Three-year regulatory exclusivity.*** We expect the FDA will grant XHANCE a three-year period of regulatory exclusivity. This exclusivity, if granted, means that we would be afforded at least three years in which to market our product free of generic or 505(b)(2) competition post-NDA approval.

Intellectual Property

We strive to protect our proprietary technology that we believe is important to our business, including seeking and maintaining patents intended to cover our product candidates and technologies that are important to the development of our business. We also rely on trade secrets to protect aspects of our business that are not amenable to, or that we do not consider appropriate for, patent protection, as well as know-how, trademarks, continuing technological innovation and in-licensing opportunities to develop and maintain our proprietary position. We internally developed our intellectual property related to our EDS, AVP-825, XHANCE and our product candidates. We have sought and intend to continue to seek appropriate patent protection for our product candidates, as well as other proprietary technologies and their uses by filing patent applications in the United States and selected other countries.

Patents

As of June 13, 2017, we owned a total of 43 U.S. patents and 35 pending U.S. patent applications. These U.S. patents will expire between 2020 and 2030. These U.S. patent applications, subject to issuance, would be projected to expire between 2020 and 2035, with potential patent term adjustments that would extend the patent term. In addition to our U.S. intellectual property, we also own 185 foreign issued patents, which will expire between 2020 and 2033 and 132 foreign patent applications, which will expire between 2020 and 2035, subject to issuance.

Our XHANCE patent portfolio consists of nine issued U.S. patents and 12 pending U.S. patent applications. Our issued U.S. patent portfolio consists of device and method of use patents expiring between 2020 and 2030. Our pending patent applications in the United States, subject to issuance, would be projected to expire between 2022 and 2034, with potential patent term adjustments that would extend the patent term.

Certain of our patents and patent applications for XHANCE, if granted, will be published in the FDA's Approved Drug Products with Therapeutic Equivalence Evaluations, commonly known as the Orange Book. Drugs listed in the Orange Book can, in turn, be cited by potential generic competitors in support of approval of an abbreviated NDA, or ANDA, or a 505(b)(2) NDA. If any of these potential generic competitors claim that their product will not infringe XHANCE's listed patents, or that such patents are invalid, then they must send notice to us once the ANDA or 505(b)(2) NDA has been accepted for filing by the FDA. We may then initiate a patent infringement lawsuit in response to the notice of the Paragraph IV certification, which would automatically prevent the FDA from approving the ANDA or 505(b)(2) NDA until the earlier of 30 months, expiration of the patent, settlement of the lawsuit, or a decision in the infringement case that is favorable to the ANDA or 505(b)(2) NDA applicant.

The rest of our patent portfolio largely relates to patents and applications owned by us and directed to AVP-825 and other product candidates, including OPN-300 and OPN-021.

Trade Secrets and Other Proprietary Information

We seek to protect our proprietary information, including our trade secrets and proprietary know-how, by requiring our employees, consultants and other advisors to execute confidentiality agreements upon the commencement of their employment or engagement. These agreements generally provide that all confidential information developed or made known during the course of the relationship with us be kept confidential and not be disclosed to third parties except in specific circumstances. In the case of our employees, the agreements also typically provide that all inventions resulting from work performed for us,

utilizing our property or relating to our business and conceived or completed during employment shall be our exclusive property to the extent permitted by law. Where appropriate, agreements we obtain with our consultants also typically contain similar assignment of invention provisions. Further, we generally require confidentiality agreements from business partners and other third parties that receive our confidential information.

Trademarks

We also rely on trademarks and trade designs to develop and maintain our competitive position. OPTINOSE®, XHANCE™ and Breath Powered® are trademarks or registered trademarks of ours in the United States.

AVP-825 License Agreement

In July 2013, we, through our wholly-owned subsidiary, OptiNose AS, entered into a license agreement, or the AVP-825 License Agreement, with Avanir pursuant to which we granted an exclusive license to Avanir to further develop and commercialize AVP-825, a combination of our EDS with a lose-dose sumatriptan powder, for the acute treatment of migraines in adults, in the United States, Canada and Mexico, which we refer to collectively as the Licensed Territory. AVP-825 was approved by the FDA in January 2016 for the acute treatment of migraines in adults and became commercially available in May 2016 under the brand name Onzetra Xsail.

We have received $70.0 million in aggregate licensing revenues to date, consisting of an up-front fee of $20.0 million received in 2013, a $2.5 million payment received in June 2014 upon the achievement of a development milestone and a $47.5 million payment received in February 2016 upon FDA approval of AVP-825. We are eligible to receive up to an additional $50.0 million upon the achievement of annual sales milestones and tiered low double-digit royalty payments once and if net sales of the product exceed a specified cumulative threshold.

Unless earlier terminated in accordance its terms, the AVP-825 License Agreement, including the royalty payments, will remain in effect on a country-by-country basis in the Licensed Territory until the commercial launch of a generic product in such country, at which time the AVP-825 License Agreement, including the royalty payments, will expire as to that particular country. In the United States, which to date is the only jurisdiction in the Licensed Territory in which AVP-825 has been approved for marketing, the commercial launch of a generic version of AVP-825 can occur as soon as the FDA grants marketing approval to a product as a generic to AVP-825. Several patents with respect to AVP-825 are published in the Orange Book, with the last patent expiring in December 2030. A sponsor of a generic version of AVP-825 must use AVP-825 as a reference listed drug in its ANDA, thereby requiring the sponsor to make one of several certifications regarding each AVP-825 patent listed in the Orange Book. A "Paragraph III" certification is the sponsor's statement that it will wait for the applicable patent to expire before obtaining approval for its product. A "Paragraph IV" certification is an assertion that the applicable patent does not block approval of the generic product, either because the patent is invalid or unenforceable or because the patent, even if valid, is not infringed by the generic product. If a sponsor of a generic version of AVP-825 files a "Paragraph III" certification with respect to each of the AVP-825 patents listed in the Orange Book, then the earliest the FDA will grant marketing approval to the generic product is December 2030. If, however, a sponsor of a generic version of AVP-825 files a "Paragraph IV" certification challenging AVP-825's Orange Book-listed patents, then, within 20 days of the FDA accepting the filing, the sponsor must provide notice to us and Avanir that an ANDA has been filed with the FDA, and provide the factual and legal basis for the sponsor's assertion that the patent is invalid or not infringed. If we or Avanir file suit against the applicant for patent infringement within 45 days of receiving the Paragraph IV notice, the FDA is prohibited from approving the ANDA application for a period of 30 months or the resolution of the underlying suit, whichever is earlier. The FDA may approve the proposed product before the expiration of the 30-month stay if a court finds the patent invalid or not infringed or if the court shortens the period because the parties have failed to cooperate in expediting the litigation. If the sponsor is unsuccessful in its defense of

non-infringement or unable to prove invalidity of the listed patents, the court could issue an injunction prohibiting the launch of the generic version of AVP-825 until the last patent expires in December 2030.

Avanir may terminate the AVP-825 License Agreement in its sole discretion upon prior written notice to us as described in the agreement. We may terminate the AVP-825 License Agreement if Avanir commences any legal or administrative proceeding to revoke or challenge the validity of certain of the intellectual property we licensed to Avanir pursuant to the AVP-825 License Agreement. In addition, the AVP-825 License Agreement provides for customary termination rights in the event of a breach of the AVP-825 License Agreement by the other party.

Manufacturing and Distribution

Manufacturing

We currently contract with third parties for the manufacture, testing and storage of our product candidates. In our experience, contract manufacturers, or CMOs, are generally cost-efficient and reliable and therefore we currently have no plans to build our own clinical or commercial manufacturing capabilities. Because we rely on CMOs, we employ personnel with extensive technical, manufacturing, analytical and quality experience to oversee contract manufacturing and testing activities, and to compile manufacturing and quality information for our regulatory submissions. Manufacturing is subject to extensive regulations that impose various procedural and documentation requirements, and which govern record-keeping, manufacturing processes and controls, personnel, quality control and quality assurance, among other activities. Our systems and our contractors are required to comply with these regulations, and we assess this compliance regularly through monitoring of performance and a formal audit program. To date, our third-party manufacturers have met our manufacturing requirements for clinical trials.

We have entered into the following key supply agreements for the commercial manufacture and supply of XHANCE:

- In July 2017, we entered into a supply agreement with Hovione Inter Ltd, or Hovione, for the supply of fluticasone propionate, the active pharmaceutical ingredient included in the liquid suspension formulation. This agreement has a term of five years from commercial launch of XHANCE, subject to earlier termination or extension in accordance with the terms of the agreement. Either we or Hovione may terminate the agreement prior to that date for uncured material breach or insolvency of the other party. We may also terminate the agreement in the event Hovione, among other things, (i) loses any required FDA approval rendering it unable to fulfill its contractual obligations, (ii) is engaged in felonious or fraudulent activities or (iii) does not submit a Corrective and Preventive Action plan to the FDA within a specified period of time of being notified of deficiencies in Hovione's facility.

- In August 2017, we entered into a manufacture and supply agreement with Contract Pharmaceuticals Limited Canada, or CPL, for the formulation and assembly of the finished drug product during the fill/pack operation. This agreement has a term of five years from the date on which we provide a purchase order for validation batches to CPL, subject to earlier termination or extension in accordance with the terms of the agreement. Either we or CPL may terminate the agreement prior to that date by mutual consent or for uncured material breach by or insolvency of the other party. We may also terminate the agreement if, among other things, any intellectual property of any third party is reasonably alleged by a third party to be infringed, misappropriated or otherwise violated by the manufacture, import, use, sale or distribution of XHANCE or if any regulatory authority requires us to cease production of the sale of XHANCE.

- In August 2017, we entered into a manufacturing services agreement with Ximedica, LLC for the manufacture of the liquid delivery sub-assembly, which consists of injection molded parts and other purchased components. This agreement has a term of two years from September 18, 2017, subject to earlier termination in accordance with the terms of the agreement. Either we or Ximedica may terminate the agreement prior to that date for uncured material breach or insolvency of the other party. We may also terminate the agreement for any reason upon prior written notice or if Ximedica

(i) fails an inspection or suffers a disciplinary action by a governmental authority and fails to cure such issue within a specified period of time or (ii) fails to gain recommendation for approval by the FDA to manufacture the liquid delivery subassembly component to be manufactured pursuant to the agreement.

We expect that our third-party manufacturers will be capable of providing sufficient quantities of XHANCE to meet anticipated commercial demands.

Distribution

We plan to establish a distribution channel in the United States for the commercialization of XHANCE. We expect to sell XHANCE to wholesale pharmaceutical distributors, who, in turn, will sell XHANCE to pharmacies, hospitals and other customers. We expect to use a third-party logistics provider for key services related to logistics, warehousing and inventory management, distribution, contract administration and chargeback processing and accounts receivable management.

Competition

Our industry is highly competitive and subject to rapid and significant technological change as research provides a deeper understanding of the pathology of diseases and new technologies and treatments are developed. We believe our scientific knowledge, technology, and development capabilities provide us with substantial competitive advantages, but we face potential competition from multiple sources, including large pharmaceutical, biotechnology, specialty pharmaceutical and, to a lesser degree, medical device companies.

XHANCE will compete primarily with INS, oral steroids and other medical management products, including locally compounded liquid budesonide in high-volume nasal rinses. XHANCE will also compete with surgical procedures, balloon sinus dilation products and steroid-releasing sinus implants. Key competitive factors affecting the commercial success of XHANCE and any other product candidates we may develop are likely to be efficacy, safety and tolerability profile, reliability, convenience of administration, price and reimbursement.

The only other INS on the market indicated for the treatment of nasal polyps is Nasonex, which is marketed by Merck & Co., Inc. In addition, Beconase AQ, which is an INS marketed by GlaxoSmithKline, is indicated for the prophylaxis of nasal polyps after surgical resection. There are no products approved for the treatment of chronic sinusitis without nasal polyps. There are two categories of INS: first-generation INS products, which include Rhinocort, Nasacort AQ and Qnasl; and second-generation INS products, which include Flonase, Veramyst, Omnaris and Zetonna. The primary difference between first- and second-generation INS products is that first-generation INS are absorbed into the blood to a greater extent than second-generation INS, with systemic bioavailability ranging from 10% to 50% compared to a systemic bioavailability with fluticasone propionate, a second-generation INS, of less than 2%. Many of the most widely-prescribed INS products are available in generic form and some, such as Flonase, are available over-the-counter.

Several companies are also currently developing biologic monoclonal antibodies for the treatment of nasal polyps. These biologic monoclonal antibodies, which inhibit specific pathways of inflammation present in nasal polyps, include omalizumab, reslizumab, mepolizumab and dupilumab. Omalizumab has been studied in investigator-initiated Phase 2 clinical trials. GlaxoSmithKline has studied mepolizumab in a sponsor-initiated Phase 2 clinical trial and plans to begin enrolling patients in a Phase 3 clinical trial later this year with study completion anticipated in 2019. Dupilumab has been studied in a sponsor-initiated Phase 2 clinical trial and Sanofi is currently investigating it in two Phase 3 clinical trials that are enrolling patients and expected to be completed in the second half of 2018. If these biologic monoclonal antibodies are successfully developed and approved for marketing, they could represent significant competition for XHANCE.

Government Regulation

As a pharmaceutical company that operates in the United States, we are subject to extensive regulation by the FDA and other federal, state, and local regulatory agencies. The Federal Food, Drug and Cosmetic Act, or the FD&C Act, and FDA's implementing regulations set forth, among other things, requirements for the testing, development, manufacture, quality control, safety, effectiveness, approval, labeling, storage, record-keeping, reporting, distribution, import, export, advertising and promotion of our product candidates. Although the discussion below focuses on regulation in the United States, because that is currently our primary focus, we anticipate seeking approval for, and marketing, our products in other countries in the future. Generally, our activities in other countries will be subject to regulation that is similar in nature and scope as that imposed in the United States, although there can be important differences.

Development and Approval

Under the FD&C Act, FDA approval of an NDA is required before any new drug can be marketed in the United States. NDAs require extensive studies and submission of a large amount of data by the applicant.

Preclinical Testing. Before testing any compound in human patients in the United States, a company must generate extensive preclinical data. Preclinical testing generally includes laboratory evaluation of product chemistry and formulation, as well as toxicological and pharmacological studies in several animal species to assess the quality and safety of the product. Certain animal studies must be performed in compliance with the FDA's Good Laboratory Practice, or GLP, regulations and the U.S. Department of Agriculture's Animal Welfare Act.

IND Application. Human clinical trials in the United States cannot commence until an investigational new drug, or IND, application is submitted and becomes effective. A company must submit preclinical testing results to the FDA as part of the IND, and the FDA must evaluate whether there is an adequate basis for testing the drug in initial clinical studies in human volunteers. Unless the FDA raises concerns, the IND becomes effective 30 days following its receipt by the FDA. Once human clinical trials have commenced, the FDA may stop a clinical trial by placing it on "clinical hold" because of concerns about the safety of the product being tested, or for other reasons.

Clinical Trials. Clinical trials involve the administration of a drug to healthy human volunteers or to patients, under the supervision of a qualified investigator. The conduct of clinical trials is subject to extensive regulation, including compliance with the FDA's bioresearch monitoring regulations and Good Clinical Practice, or GCP, requirements, which establish standards for conducting, recording data from, and reporting the results of, clinical trials, and are intended to assure that the data and reported results are credible and accurate, and that the rights, safety, and well-being of study participants are protected. Clinical trials must be conducted under protocols that detail the study objectives, parameters for monitoring safety, and the efficacy criteria, if any, to be evaluated. Each protocol is reviewed by the FDA as part of the IND. In addition, each clinical trial must be reviewed and approved by, and conducted under the auspices of, an Institutional Review Board, or IRB. Companies sponsoring the clinical trials, investigators, and IRBs also must comply with, as applicable, regulations and guidelines for obtaining informed consent from the study patients, following the protocol and investigational plan, adequately monitoring the clinical trial, and timely reporting of AEs. Foreign studies conducted under an IND must meet the same requirements that apply to studies being conducted in the United States. Data from a foreign study not conducted under an IND may be submitted in support of an NDA if the study was conducted in accordance with GCP and the FDA is able to validate the data.

A study sponsor is required to publicly post specified details about certain clinical trials and clinical trial results on government or independent websites (e.g., http://clinicaltrials.gov). Human clinical trials typically are conducted in three sequential phases, although the phases may overlap with one another:

- Phase 1 clinical trials involve the initial administration of the investigational drug to humans, typically to a small group of healthy human patients, but occasionally to a group of patients with the

targeted disease or disorder. Phase 1 clinical trials generally are intended to determine the metabolism and pharmacologic actions of the drug, the side effects associated with increasing doses, and, if possible, to gain early evidence of effectiveness.

- Phase 2 clinical trials generally are controlled studies that involve a relatively small sample of the intended patient population, and are designed to develop initial data regarding the product's effectiveness, to determine dose response and the optimal dose range, and to gather additional information relating to safety and potential AEs.

- Phase 3 clinical trials are conducted after preliminary evidence of effectiveness has been obtained, and are intended to gather the additional information about safety and effectiveness necessary to evaluate the drug's overall risk-benefit profile, and to provide a basis for physician labeling. Generally, Phase 3 clinical development programs consist of expanded, large-scale studies of patients with the target disease or disorder to obtain statistical evidence of the efficacy and safety of the drug at the proposed dosing regimen.

The sponsoring company, the FDA, or the IRB may suspend or terminate a clinical trial at any time on various grounds, including a finding that the patients are being exposed to an unacceptable health risk. Further, success in early-stage clinical trials does not assure success in later-stage clinical trials. Data obtained from clinical activities are not always conclusive and may be subject to alternative interpretations that could delay, limit or prevent regulatory approval.

NDA Submission and Review. The FD&C Act provides two pathways for the approval of new drugs through an NDA. An NDA under Section 505(b)(1) of the FD&C Act is a comprehensive application to support approval of a product candidate that includes, among other things, data and information to demonstrate that the proposed drug is safe and effective for its proposed uses, that production methods are adequate to ensure its identity, strength, quality, and purity of the drug, and that proposed labeling is appropriate and contains all necessary information. A 505(b)(1) NDA contains results of the full set of preclinical studies and clinical trials conducted by or on behalf of the applicant to characterize and evaluate the product candidate.

Section 505(b)(2) of the FD&C Act provides an alternate regulatory pathway to obtain FDA approval for new formulations or new uses of previously approved drug products. Specifically, Section 505(b)(2) permits the filing of an NDA where at least some of the information required for approval comes from studies not conducted by or for the applicant and for which the applicant has not obtained a right of reference. The applicant may rely to some extent upon the FDA's findings of safety and effectiveness for an approved product that acts as the reference listed drug, or RLD, and submit its own product-specific data — which may include data from preclinical studies or clinical trials conducted by or on behalf of the applicant — to address differences between the product candidate and the RLD. We obtained FDA approval of XHANCE through the Section 505(b)(2) regulatory approval pathway, with Flonase and Flovent HFA as the RLDs. Flonase and Flovent HFA contain fluticasone propionate, which is also used in XHANCE.

The submission of an NDA under either Section 505(b)(1) or Section 505(b)(2) generally requires payment of a substantial user fee to the FDA. The FDA reviews applications to determine, among other things, whether a product is safe and effective for its intended use and whether the manufacturing controls are adequate to assure and preserve the product's identity, strength, quality, and purity. For some NDAs, the FDA may convene an advisory committee to seek insights and recommendations on issues relevant to approval of the application. Although the FDA is not bound by the recommendation of an advisory committee, the agency usually has followed such recommendations.

Our product candidates include products that combine drug and device components in a manner that the FDA considers to meet the definition of a "combination product" under FDA regulations. The FDA exercises significant discretion over the regulation of combination products, including the discretion to require separate marketing applications for the drug and device components in a combination product. For

XHANCE, FDA's Center for Drug Evaluation and Research, or CDER, had primary jurisdiction for review of the NDA, and both the drug and device were reviewed under one marketing application. However, for a drug-device combination product CDER typically consults with the Center for Devices and Radiological Health in the NDA review process.

The FDA may determine that a Risk Evaluation and Mitigation Strategy, or REMS, is necessary to ensure that the benefits of a new product outweigh its risks, and the product can therefore be approved. A REMS may include various elements, ranging from a medication guide or patient package insert to limitations on who may prescribe or dispense the drug, depending on what the FDA considers necessary for the safe use of the drug. Under the Pediatric Research Equity Act, certain applications for approval must also include an assessment, generally based on clinical study data, of the safety and effectiveness of the subject drug in relevant pediatric populations. Before approving an NDA, the FDA will inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with current Good Manufacturing Practice, or cGMP, requirements and adequate to assure consistent production of the product within required specifications.

Once an NDA submission has been accepted for filing — which occurs, if at all, within 60 days after submission of the NDA — the FDA's goal for a non-priority review of an NDA is ten months. The review process can be and often is significantly extended, however, by FDA requests for additional information, studies, or clarification. After review of an NDA, the FDA may decide to not approve the application or may issue a complete response letter outlining the deficiencies in the submission. The complete response letter also may request additional information, including additional preclinical or clinical data. Even if such additional information and data are submitted, the FDA may decide that the NDA still does not meet the standards for approval. Data from clinical trials are not always conclusive and the FDA may interpret data differently than the sponsor.

Obtaining regulatory approval often takes a number of years, involves the expenditure of substantial resources, and depends on a number of factors, including the severity of the disease in question, the availability of alternative treatments, and the risks and benefits demonstrated in clinical trials. Additionally, as a condition of approval, the FDA may impose restrictions that could affect the commercial success of a drug or require post-approval commitments, including the completion within a specified time period of additional clinical studies, which often are referred to as "Phase 4" or "post-marketing" studies. For example, the FDA requires us to conduct a randomized, double-blind, placebo controlled, parallel group clinical study in children and adolescents 6 to 17 years of age with bilateral nasal polyps associated with nasal congestion to assess the safety, efficacy, pharmacokinetics, and pharmacodynamics of XHANCE in improving nasal polyp grade and symptoms (nasal congestion/obstruction, sense of smell, rhinorrhea and facial pain or pressure). The FDA requires us to submit our final protocol with respect to the pediatric study by January 2018, complete the study by January 2022 and submit a final report with respect to the study by July 2022.

Post-approval modifications to the drug, such as changes in indications, labeling, or manufacturing processes or facilities, may require a sponsor to develop additional data or conduct additional preclinical studies or clinical trials, to be submitted in a new or supplemental NDA, which would require FDA approval.

Post-Approval Regulation

Once approved, products are subject to continuing regulation by the FDA. If ongoing regulatory requirements are not met or if safety problems occur after the product reaches the market, the FDA may at any time withdraw product approval or take actions that would limit or suspend marketing. Additionally, the FDA may require post-marketing studies or clinical trials if new safety information develops.

Good Manufacturing Practices. Companies engaged in manufacturing drug products or their components must comply with applicable cGMP requirements and product-specific regulations enforced by the FDA and

other regulatory agencies. Compliance with cGMP includes adhering to requirements relating to organization and training of personnel, buildings and facilities, equipment, control of components and drug product containers and closures, production and process controls, quality control and quality assurance, packaging and labeling controls, holding and distribution, laboratory controls, and records and reports. The FDA regulates and inspects equipment, facilities, and processes used in manufacturing pharmaceutical products prior to approval. If, after receiving approval, a company makes a material change in manufacturing equipment, location, or process (all of which are, to some degree, incorporated in the NDA), additional regulatory review and approval may be required. The FDA also conducts regular, periodic visits to re-inspect equipment, facilities, and processes following the initial approval of a product. Failure to comply with applicable cGMP requirements and conditions of product approval may lead the FDA to seek sanctions, including fines, civil penalties, injunctions, suspension of manufacturing operations, operating restrictions, withdrawal of FDA approval, seizure or recall of products, and criminal prosecution. Although we periodically monitor the FDA compliance of our third-party manufacturers, we cannot be certain that our present or future third-party manufacturers will consistently comply with cGMP and other applicable FDA regulatory requirements.

It is also likely that we will need to comply with some of FDA's manufacturing regulations for devices. FDA has discretion in determining post-approval compliance requirements for products that combine a drug substance with a delivery system device. In addition to cGMP, FDA may require that our drug-device combination product, if approved, comply with the Quality System Regulation, or QSR, which sets forth the FDA's manufacturing quality standards for medical devices.

Advertising and Promotion. The FDA and other federal regulatory agencies closely regulate the marketing and promotion of drugs through, among other things, standards and regulations for direct-to-consumer advertising, advertising and promotion to healthcare professionals, communications regarding unapproved uses, industry-sponsored scientific and educational activities, and promotional activities involving the Internet. A product cannot be commercially promoted before it is approved. After approval, product promotion can include only those claims relating to safety and effectiveness that are consistent with the labeling approved by the FDA. Healthcare providers are permitted to prescribe drugs for "off-label" uses — that is, uses not approved by the FDA and not described in the product's labeling — because the FDA does not regulate the practice of medicine. However, FDA regulations impose restrictions on manufacturers' communications regarding off-label uses. Broadly speaking, a manufacturer may not promote a drug for off-label use, but under certain conditions may engage in non-promotional, balanced, scientific communication regarding off-label use. Failure to comply with applicable FDA requirements and restrictions in this area may subject a company to adverse publicity and enforcement action by the FDA, the Department of Justice, or the Office of the Inspector General of the Department of Health and Human Services, as well as state authorities. This could subject a company to a range of penalties that could have a significant commercial impact, including civil and criminal fines and agreements that materially restrict the manner in which a company promotes or distributes a drug.

Other Requirements. NDA holders must comply with other regulatory requirements, including submitting annual reports, reporting information about adverse drug experiences, and maintaining certain records.

Hatch-Waxman Act

The Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Act, establishes two abbreviated approval pathways for pharmaceutical products that are in some way follow-on versions of already approved products.

Generic Drugs. A generic version of an approved drug is approved by means of an ANDA, by which the sponsor demonstrates that the proposed product is the same as the approved, brand-name drug, which is referred to as the RLD. Generally, an ANDA must contain data and information showing that the proposed generic product and RLD (i) have the same active ingredient, in the same strength and dosage form, to be delivered via the same route of administration, (ii) are intended for the same uses, and (iii) are

bioequivalent. This is instead of independently demonstrating the proposed product's safety and effectiveness, which are inferred from the fact that the product is the same as the RLD, which the FDA previously found to be safe and effective.

505(b)(2) NDAs. As discussed above, if a product is similar, but not identical, to an already approved product, it may be submitted for approval via an NDA under section 505(b)(2) of the FD&C Act. Unlike an ANDA, this does not excuse the sponsor from demonstrating the proposed product's safety and effectiveness. Rather, the sponsor is permitted to rely to some degree on the FDA's finding that the RLD is safe and effective, and must submit its own product-specific data of safety and effectiveness to an extent necessary because of the differences between the products. An NDA approved under 505(b)(2) may in turn serve as an RLD for subsequent applications from other sponsors.

RLD Patents. In an NDA, a sponsor must identify patents that claim the drug substance or drug product or a method of using the drug. When the drug is approved, those patents are among the information about the product that is listed in the FDA publication, *Approved Drug Products with Therapeutic Equivalence Evaluations*, which is referred to as the *Orange Book*. The sponsor of an ANDA or 505(b)(2) application seeking to rely on an approved product as the RLD must make one of several certifications regarding each listed patent. A "Paragraph III" certification is the sponsor's statement that it will wait for the patent to expire before obtaining approval for its product. A "Paragraph IV" certification is an assertion that the patent does not block approval of the later product, either because the patent is invalid or unenforceable or because the patent, even if valid, is not infringed by the new product.

Regulatory Exclusivities. The Hatch-Waxman Act provides periods of regulatory exclusivity for products that would serve as RLDs for an ANDA or 505(b)(2) application. If a product is a "new chemical entity," or NCE — generally meaning that the active moiety has never before been approved in any drug — there is a period of five years from the product's approval during which the FDA may not accept for filing any ANDA or 505(b)(2) application for a drug with the same active moiety. An ANDA or 505(b)(2) application may be submitted after four years, however, if the sponsor of the application makes a Paragraph IV certification.

A product that is not an NCE may qualify for a three-year period of exclusivity if the NDA contains new clinical data, derived from studies conducted by or for the sponsor, that were necessary for approval. In that instance, the exclusivity period does not preclude filing or review of an ANDA or 505(b)(2) application; rather, the FDA is precluded from granting final approval to the ANDA or 505(b)(2) application until three years after approval of the RLD. Additionally, the exclusivity applies only to the conditions of approval that required submission of the clinical data.

Once the FDA accepts for filing an ANDA or 505(b)(2) application containing a Paragraph IV certification, the applicant must within 20 days provide notice to the RLD NDA holder and patent owner that the application has been submitted, and provide the factual and legal basis for the applicant's assertion that the patent is invalid or not infringed. If the NDA holder or patent owner files suit against the ANDA or 505(b)(2) applicant for patent infringement within 45 days of receiving the Paragraph IV notice, the FDA is prohibited from approving the ANDA or 505(b)(2) application for a period of 30 months or the resolution of the underlying suit, whichever is earlier. If the RLD has NCE exclusivity and the notice is given and suit filed during the fifth year of exclusivity, the 30-month stay does not begin until five years after the RLD approval. The FDA may approve the proposed product before the expiration of the 30-month stay if a court finds the patent invalid or not infringed or if the court shortens the period because the parties have failed to cooperate in expediting the litigation.

Patent Term Restoration. A portion of the patent term lost during product development and FDA review of an NDA is restored if approval of the application is the first permitted commercial marketing of a drug containing the active ingredient. The patent term restoration period is generally one-half the time between the effective date of the IND or the date of patent grant (whichever is later) and the date of submission of the NDA, plus the time between the date of submission of the NDA and the date of FDA approval of the

product. The maximum period of restoration is five years, and the patent cannot be extended to more than 14 years from the date of FDA approval of the product. Only one patent claiming each approved product is eligible for restoration and the patent holder must apply for restoration within 60 days of approval. The U.S. Patent and Trademark Office, or PTO, in consultation with the FDA, reviews and approves the application for patent term restoration. When any of our products is approved, we intend to seek patent term restoration for an applicable patent when it is appropriate.

Other Exclusivities

Pediatric Exclusivity. Section 505A of the FD&C Act provides for six months of additional exclusivity or patent protection if an NDA sponsor submits pediatric data that fairly respond to a written request from the FDA for such data. The data does not need to show that the product is effective in the pediatric population studied; rather, if the clinical trial is deemed to fairly respond to the FDA's request, the additional protection is granted. If reports of requested pediatric studies are submitted to and accepted by FDA within the statutory time limits, whatever statutory or regulatory periods of exclusivity or *Orange Book* listed patent protection that cover the drug are extended by six months. This is not a patent term extension, but it effectively extends the regulatory period during which the FDA cannot approve an ANDA or 505(b)(2) application owing to regulatory exclusivity or listed patents. When any product is approved, we will evaluate seeking pediatric exclusivity as appropriate.

Orphan Drug Exclusivity. The Orphan Drug Act provides incentives for the development of drugs intended to treat rare diseases or conditions, which generally are diseases or conditions affecting less than 200,000 individuals in the United States. If a sponsor demonstrates that a drug is intended to treat a rare disease or condition, the FDA grants orphan drug designation to the product for that use. The benefits of orphan drug designation include research and development tax credits and exemption from user fees. A drug that is approved for the orphan drug designated indication generally is granted seven years of orphan drug exclusivity. During that period, the FDA generally may not approve any other application for the same product for the same indication, although there are exceptions, most notably when the later product is shown to be clinically superior to the product with exclusivity. We may seek orphan drug designation and exclusivity for OPN-300, which we are developing for the treatment of Prader-Willi syndrome and autism spectrum disorder.

U.S. Healthcare Reform

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, which we refer to together as the Affordable Care Act, is a sweeping measure intended to expand healthcare coverage within the United States, primarily through the imposition of health insurance mandates on employers and individuals and expansion of the Medicaid program. This law substantially changes the way healthcare is financed by both governmental and private insurers and significantly impacts the pharmaceutical industry. Changes that may affect our business include those governing enrollment in federal healthcare programs, reimbursement changes, benefits for patients within a coverage gap in the Medicare Part D prescription drug program (commonly known as the "donut hole"), rules regarding prescription drug benefits under the health insurance exchanges, changes to the Medicaid Drug Rebate program, expansion of the Public Health Service's 340B drug pricing discount program, or 340B program, fraud and abuse, and enforcement. These changes impact existing government healthcare programs and are resulting in the development of new programs, including Medicare payment for performance initiatives and improvements to the physician quality reporting system and feedback program. Details of the changes to the Medicaid Drug Rebate program and the 340B program are discussed under the risk factor "*If we are able to successfully commercialize XHANCE and if we participate in but fail to comply with our reporting and payment obligations under the Medicaid drug rebate program, or other governmental pricing programs, we could be subject to additional reimbursement requirements, penalties, sanctions and fines which could have a material adverse effect on our business, financial condition, results of operations and growth prospects*" in the "Risk Factors" section of this prospectus.

Some states have elected not to expand their Medicaid programs to individuals with an income of up to 133% of the federal poverty level, as is permitted under the Affordable Care Act. For each state that does not choose to expand its Medicaid program, there may be fewer insured patients overall, which could impact our sales of products for which we receive regulatory approval, business and financial condition. Where new patients receive insurance coverage under any of the new Medicaid options made available through the Affordable Care Act, the possibility exists that manufacturers may be required to pay Medicaid rebates on drugs used under these circumstances, a decision that could impact manufacturer revenues. In addition, the federal government has announced delays in the implementation of key provisions of the Affordable Care Act.

Moreover, legislative changes to or regulatory changes under the Affordable Care Act remain possible in the 115th U.S. Congress and under the Trump Administration. The American Health Care Act of 2017, or AHCA, which would repeal and replace key portions of the Affordable Care Act was passed by the U.S. House of Representatives but remains subject to passage by the U.S. Senate. In addition, in January 2017, President Trump signed an Executive Order directing federal agencies with authorities and responsibilities under the ACA to waive, defer, grant exemptions from, or delay the implementation of any provision of the ACA that would impose a fiscal or regulatory burden on states, individuals, healthcare providers, health insurers, or manufacturers of pharmaceuticals or medical devices. More recently, the Senate Republicans introduced and then updated a bill to replace the Affordable Care Act known as the Better Care Reconciliation Act of 2017. The Senate Republicans also introduced legislation to repeal the Affordable Care Act without companion legislation to replace it, and a "skinny" version of the Better Care Reconciliation Act of 2017. Each of these measures was rejected by the full Senate. Congress will likely consider other legislation to replace elements of the Affordable Care Act. We expect that the Affordable Care Act, as currently enacted or as it may be amended or replaced in the future, and other healthcare reform measures that may be adopted in the future could have a material adverse effect on our industry generally and on our ability to maintain or increase sales of products for which we receive regulatory approval or to successfully commercialize our product candidates, if approved.

Coverage and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any products for which we may obtain regulatory approval. Sales of any of our products and product candidates, if approved, will depend, in part, on the extent to which the costs of the products will be covered by third-party payors, including government healthcare programs such as Medicare and Medicaid, and private payors, such as commercial health insurers and managed care organizations. Third-party payors determine which drugs they will cover and the amount of reimbursement they will provide for a covered drug. In the U.S., there is no uniform system among payors for making coverage and reimbursement decisions. In addition, the process for determining whether a payor will provide coverage for a product may be separate from the process for setting the price or reimbursement rate that the payor will pay for the product once coverage is approved. Third-party payors may limit coverage to specific products on an approved list, or formulary, which might not include all of the FDA-approved products for a particular indication.

In order to secure coverage and reimbursement for our products, if approved for sale, we may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of the product, in addition to the costly studies required to obtain FDA or other comparable regulatory approvals. Even if we conduct pharmacoeconomic studies, our products and product candidates may not be considered medically necessary or cost-effective by payors. Further, a payor's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be approved.

In the past, payors have implemented reimbursement metrics and periodically revised those metrics as well as the methodologies used as the basis for reimbursement rates, such as average sales price, or ASP, average manufacturer price, or AMP, and actual acquisition cost. The existing data for reimbursement based on these metrics is relatively limited, although certain states have begun to survey acquisition cost data for

the purpose of setting Medicaid reimbursement rates. The Centers for Medicare and Medicaid Services, or CMS, surveys and publishes retail pharmacy acquisition cost information in the form of National Average Drug Acquisition Cost, or NADAC, files to provide state Medicaid agencies with a basis of comparison for their own reimbursement and pricing methodologies and rates.

Participation in the Medicaid Drug Rebate program would require us to pay a rebate for each unit of drug reimbursed by Medicaid. The amount of the "basic" portion of the rebate for each product is set by law as the larger of: (i) 23.1% of quarterly AMP, or (ii) the difference between quarterly AMP and the quarterly best price available from us to any commercial or non-governmental customer, or Best Price. AMP must be reported on a monthly and quarterly basis and Best Price is reported on a quarterly basis only. In addition, the rebate also includes the "additional" portion, which adjusts the overall rebate amount upward as an "inflation penalty" when the drug's latest quarter's AMP exceeds the drug's AMP from the first full quarter of sales after launch, adjusted for increases in the Consumer Price Index-Urban. The upward adjustment in the rebate amount per unit is equal to the excess amount of the current AMP over the inflation-adjusted AMP from the first full quarter of sales. The rebate amount is recomputed each quarter based on our report to CMS of current quarterly AMP and Best Price for our drug. The terms of our participation in the program would impose a requirement for us to report revisions to AMP or Best Price within a period not to exceed 12 quarters from the quarter in which the data was originally due. Any such revisions could have the impact of increasing or decreasing our rebate liability for prior quarters, depending on the direction of the revision.

Federal law requires that any manufacturer that participates in the Medicaid Drug Rebate program also participate in the 340B program in order for federal funds to be available for the manufacturer's drugs under Medicaid and Medicare Part B. The 340B program requires participating manufacturers to agree to charge statutorily defined covered entities no more than the 340B "ceiling price" for the manufacturer's covered outpatient drugs. These 340B covered entities include a variety of community health clinics and other entities that receive health services grants from the Public Health Service, as well as hospitals that serve a disproportionate share of low-income patients. The 340B ceiling price is calculated using a statutory formula, which is based on the AMP and rebate amount for the covered outpatient drug as calculated under the Medicaid Drug Rebate program. Any changes to the definition of AMP and the Medicaid rebate amount under the Affordable Care Act or other legislation could affect our 340B ceiling price calculations and negatively impact our results of operations.

In the U.S. Medicare program, outpatient prescription drugs may be covered under Medicare Part D. Medicare Part D is a voluntary prescription drug benefit, through which Medicare beneficiaries may enroll in prescription drug plans offered by private entities for coverage of outpatient prescription drugs. Part D plans include both stand-alone prescription drug benefit plans and prescription drug coverage as a supplement to Medicare Advantage plans provided for under Medicare Part C.

Coverage and reimbursement for covered outpatient drugs under Part D are not standardized. Part D prescription drug plan sponsors are not required to pay for all covered Part D drugs, and each drug plan can develop its own drug formulary that identifies which drugs it will cover and at what tier or level. Any formulary used by a Part D prescription drug plan must be developed and reviewed by a pharmacy and therapeutic committee. Although Part D prescription drug formularies must include drugs within each therapeutic category and class of covered Part D drugs, they have some flexibility to establish those categories and classes and are not required to cover all of the drugs in each category or class. Medicare Part D prescription drug plans may use formularies to limit the number of drugs that will be covered in any therapeutic class and/or impose differential cost sharing or other utilization management techniques.

The availability of coverage under Medicare Part D may increase demand for products for which we receive marketing approval. However, in order for the products that we market to be included on the formularies of Part D prescription drug plans, we likely will have to offer pricing that is lower than the prices we might otherwise obtain. Changes to Medicare Part D that give plans more freedom to limit coverage or manage

utilization, and other cost reduction initiatives in the program could decrease the coverage and price that we receive for any approved products and could seriously harm our business.

In order to be eligible to have our products paid for with federal funds under the Medicaid and Medicare Part B programs and purchased by certain federal agencies and grantees, we expect to participate in the U.S. Department of Veterans Affairs, or VA, Federal Supply Schedule, or FSS, pricing program. Under this program, we would be obligated to make our "innovator" drugs available for procurement on an FSS contract and charge a price to four federal agencies — the VA, U.S. Department of Defense, or DoD, Public Health Service and U.S. Coast Guard — that is no higher than the statutory Federal Ceiling Price, or FCP. The FCP is based on the non-federal average manufacturer price, or Non-FAMP, which we calculate and report to the VA on a quarterly and annual basis. We also expect to participate in the Tricare Retail Pharmacy program, under which we would pay quarterly rebates on utilization of innovator products that are dispensed through the Tricare Retail Pharmacy network to Tricare beneficiaries. The rebates are calculated as the difference between the annual Non-FAMP and FCP.

Pricing and rebate calculations vary across products and programs, are complex, and are often subject to interpretation by manufacturers, governmental or regulatory agencies, and the courts. Civil monetary penalties can be applied if a manufacturer is found to have knowingly submitted any false price information to the government or fails to submit the required price data on a timely basis. Such conduct also could be grounds for CMS to terminate the manufacturer's Medicaid drug rebate agreement, in which case federal payments may not be available under Medicaid or Medicare Part B for the manufacturer's covered outpatient drugs. In addition, claims submitted to federally-funded healthcare programs, such as Medicare and Medicaid, for drugs priced based on incorrect pricing data provided by a manufacturer can implicate the federal Civil False Claims Act.

The containment of healthcare costs has become a priority of federal, state and foreign governments, and the prices of drugs have been a focus in this effort. The U.S. government, state legislatures, and foreign governments have shown significant interest in implementing cost-containment programs to limit the growth of government-paid healthcare costs, including price controls, restrictions on reimbursement, and requirements for substitution of generic products for branded prescription drugs. For example, there have been several recent U.S. Congressional inquiries and proposed federal and state legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the cost of drugs, and reform government program reimbursement methodologies for drug products.

Beginning April 1, 2013, Medicare payments for all items and services, including drugs, were reduced by 2% under the sequestration (i.e., automatic spending reductions) required by the Budget Control Act of 2011, as amended by the American Taxpayer Relief Act of 2012. Subsequent legislation extended the 2% reduction, on average, to 2025. If Congress does not take action in the future to modify these sequestrations, Medicare Part D plans could seek to reduce their negotiated prices for drugs. Other legislative or regulatory cost containment legislation could have a similar effect.

Further, the Affordable Care Act may reduce the profitability of drug products. It expanded manufacturers' rebate liability under the Medicaid program from fee-for-service Medicaid utilization to include the utilization of Medicaid managed care organizations as well, increased the minimum Medicaid rebate due for most innovator drugs, and capped the total rebate amount for innovator drugs at 100% of AMP. The Affordable Care Act and subsequent legislation also changed the definition of AMP. On February 1, 2016, CMS issued final regulations to implement the changes to the Medicaid drug rebate program under the Affordable Care Act. These regulations became effective on April 1, 2016.

The Affordable Care Act requires pharmaceutical manufacturers of branded prescription drugs to pay a branded prescription drug fee to the federal government. Each such manufacturer pays a prorated share of the branded prescription drug fee of $4.0 billion in 2017, based on the dollar value of its branded

prescription drug sales to certain federal programs identified in the law. The Affordable Care Act also expanded the Public Health Service's 340B program to include additional types of covered entities. Substantial new provisions affecting compliance have also been enacted, which may affect our business practices with healthcare practitioners, and a significant number of provisions are not yet, or have only recently become, effective. It appears likely that the Affordable Care Act will continue the pressure on pharmaceutical pricing, especially under the Medicare and Medicaid programs, and may also increase our regulatory burdens and operating costs.

Legislative changes to and regulatory changes under the Affordable Care Act remain possible in the 115th U.S. Congress and under the Trump Administration, as discussed above under the heading "U.S. Healthcare Reform." In addition, there likely will continue to be proposals by legislators at both the federal and state levels, regulators, and third-party payors to contain healthcare costs. Thus, even if we obtain favorable coverage and reimbursement status for any products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Additional information regarding these programs is discussed under the risk factor "*If we are able to successfully commercialize XHANCE and if we participate in but fail to comply with our reporting and payment obligations under the Medicaid drug rebate program, or other governmental pricing programs, we could be subject to additional reimbursement requirements, penalties, sanctions and fines which could have a material adverse effect on our business, financial condition, results of operations and growth prospects*" in the "Risk Factors" section of this prospectus.

Healthcare Fraud and Abuse Laws

In addition to FDA restrictions on marketing of pharmaceutical products, our business will be subject to healthcare fraud and abuse regulation and enforcement by both the federal government and the states in which we conduct our business, particularly once third-party reimbursement becomes available for one or more of our products. These laws include, but are not limited to, anti-kickback and false claims statutes.

The federal Anti-kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting or receiving remuneration, directly or indirectly, in cash or in kind, to induce or in return for purchasing, leasing, ordering or arranging for or recommending the purchase, lease or order of any healthcare item or service reimbursable, in whole or in part, under Medicare, Medicaid or other federally financed healthcare programs. This statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on one hand and prescribers, purchasers, and formulary managers on the other. A violation of the Anti-Kickback Statute may be established without proving actual knowledge of the statute or specific intent to violate it. The Affordable Care Act amended federal law to provide that the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal civil False Claims Act. Although there are a number of statutory exceptions and regulatory safe harbors protecting certain common activities from prosecution, the exceptions and safe harbors are drawn narrowly and practices that involve remuneration to those who prescribe, purchase, or recommend pharmaceuticals, including certain discounts, or engaging such individuals as consultants, speakers or advisors, may be subject to scrutiny if they do not fit squarely within the exception or safe harbor. Our practices may not in all cases meet all of the criteria for safe harbor protection from anti-kickback liability. Moreover, there are no safe harbors for many common practices, such as educational and research grants, charitable donations, product support and patient assistance programs. Arrangements that implicate the Anti-Kickback Statute and do not fit within an exception or safe harbor are reviewed on a case-by-case basis to determine whether, based on the facts and circumstances, they violate the statute.

The federal civil False Claims Act prohibits, among other things, any person from knowingly presenting, or causing to be presented, a false or fraudulent claim for payment of government funds, or knowingly making, using, or causing to be made or used, a false record or statement material to an obligation to pay money to the government or knowingly concealing or knowingly and improperly avoiding, decreasing, or concealing an

obligation to pay money to the federal government. Actions under the federal civil False Claims Act may be brought by private individuals known as qui tam relators in the name of the government. In recent years, several pharmaceutical and other healthcare companies have faced enforcement actions under the federal civil False Claims Act for, among other things, providing free product to customers with the expectation that the customers would bill federal programs for the product, inflating prices reported to private price publication services which are used to set drug payment rates under government healthcare programs, and other interactions with prescribers and other customers including interactions that may have affected customers' billing or coding practices on claims submitted to the federal government. Other companies have faced enforcement actions for causing false claims to be submitted because of the company's marketing the product for unapproved, and thus non-reimbursable, uses. Federal enforcement agencies also have shown increased interest in pharmaceutical companies' product and patient assistance programs, including reimbursement and co-pay support services, and a number of investigations into these programs have resulted in significant civil and criminal settlements.

The Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act, which we refer to collectively as HIPAA, also created several new federal crimes, including healthcare fraud and false statements relating to healthcare matters. The healthcare fraud statute prohibits, among other things, knowingly and willfully executing a scheme to defraud any healthcare benefit program, including private third-party payors. The false statements statute prohibits knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement or representation, or making or using any false writing or document knowing the same to contain any materially false, fictitious or fraudulent statement or entry in connection with the delivery of or payment for healthcare benefits, items or services.

The majority of states also have statutes or regulations similar to the federal anti-kickback and false claims laws, which apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor. Several states now require pharmaceutical companies to report expenses relating to the marketing and promotion of pharmaceutical products in those states and to report gifts and payments to individual health care providers in those states. Some of these states also prohibit certain marketing-related activities including the provision of gifts, meals, or other items to certain health care providers. In addition, several states require pharmaceutical companies to implement compliance programs or marketing codes.

The Physician Payments Sunshine Act, implemented as the Open Payments program, and its implementing regulations, requires certain manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children's Health Insurance Program to report annually to CMS information related to certain payments made in the previous calendar year and other transfers of value to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members.

Compliance with such laws and regulations will require substantial resources. Because of the breadth of these various fraud and abuse laws, it is possible that some of our business activities could be subject to challenge under one or more of such laws. Such a challenge could have material adverse effects on our business, financial condition and results of operations. In the event governmental authorities conclude that our business practices do not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations, they may impose sanctions under these laws, which are potentially significant and may include civil monetary penalties, damages, exclusion of an entity or individual from participation in government health care programs, criminal fines and imprisonment, additional reporting requirements if we become subject to a corporate integrity agreement or other settlement to resolve allegations of violations of these laws, as well as the potential curtailment or restructuring of our operations. Even if we are not determined to have violated these laws, government

investigations into these issues typically require the expenditure of significant resources and generate negative publicity.

Healthcare Privacy Laws

We may be subject to laws and regulations covering data privacy and the protection of health-related and other personal information. The legislative and regulatory landscape for privacy and data protection continues to evolve, and there has been an increasing focus on privacy and data protection issues which may affect our business. Numerous federal and state laws and regulations, including state security breach notification laws, state health information privacy laws and federal and state consumer protection laws, govern the collection, use, disclosure, and protection of personal information. Failure to comply with such laws and regulations could result in government enforcement actions and create liability for us (including the imposition of significant penalties), private litigation and/or adverse publicity that could negatively affect our business. In addition, healthcare providers who prescribe our products and research institutions we collaborate with are subject to privacy and security requirements under HIPAA.

Foreign Corrupt Practices Act

In addition, the U.S. Foreign Corrupt Practices Act prohibits corporations and individuals from engaging in certain activities to obtain or retain business or to influence a person working in an official capacity. It is illegal to pay, offer to pay or authorize the payment of anything of value to any official of another country, government staff member, political party or political candidate in an attempt to obtain or retain business or to otherwise influence a person working in that capacity.

Our Corporate Information

We were incorporated in May 2010. Our predecessor entity OptiNose AS was formed under the laws of Norway in September 2000. In 2010, OptiNose AS became our subsidiary as part of an internal reorganization.

Employees

As of September 15, 2017, we had a total of 34 full-time employees (including three in the United Kingdom and one in Norway) and three part-time employees. We have no collective bargaining agreements with our employees and none are represented by labor unions. We consider our current relations with our employees to be good.

Properties

Our principal office is located in Yardley, Pennsylvania, where we lease approximately 20,500 square feet of office space pursuant to a lease that expires in March 2018. We also lease facilities in Ewing, New Jersey, Oslo, Norway and Swindon, England. We believe our facilities are adequate to meet our current needs, although we may seek to negotiate new leases or evaluate additional or alternate space for our operations. We believe appropriate alternative space will be readily available on commercially reasonable terms.

Legal Proceedings

We are not currently a party to any legal proceedings.

MANAGEMENT

Executive Officers and Directors

The following table sets forth information regarding our current executive officers and directors, including their ages as of September 15, 2017:

Name	Age	Position(s)
Executive Officers		
Peter K. Miller	56	Chief Executive Officer and Director
Ramy A. Mahmoud, M.D.,M.P.H.	52	President and Chief Operating Officer
Thomas E. Gibbs	46	Chief Commercial Officer
Keith A. Goldan	46	Chief Financial Officer
Michael F. Marino	41	Chief Legal Officer and Corporate Secretary
Non-Management Directors		
Larry G. Pickering	74	Chairman of our Board of Directors
Klaas de Boer	52	Director
Per Gisle Djupesland, M.D., Ph.D.	61	Director
William F. Doyle	55	Director
Patrick O'Neill	68	Director
Sriram Venkataraman	45	Director
Joshua A. Tamaroff	32	Director

Executive Officers

Peter K. Miller has served as our Chief Executive Officer since 2010 and as a member of our board of directors since 2008. From June 2004 to May 2007, Mr. Miller was Co-Founder, Chief Executive Officer and President of Take Care Health Systems Inc., a company that introduced medical clinics inside Walgreens retail pharmacies, and from May 2007 to May 2010, served as Vice President of Walgreen Co.'s Health and Wellness Division following its acquisition of Take Care Health Systems. Prior to co-founding Take Care Health Systems, Mr. Miller spent more than 15 years at Johnson & Johnson, a multinational medical devices, pharmaceutical and consumer packaged goods manufacturer, serving in a variety of marketing and general management roles that included Worldwide President of Johnson & Johnson — Merck Consumer Pharmaceuticals and President of Janssen Pharmaceutical. Mr. Miller has served as a member of the board of directors of Actua Corporation, a publicly-held SaaS technology company, since 2010. Mr. Miller holds a B.S. in Economics from Trinity College and an M.B.A. from the Kellogg School of Management at Northwestern University. Our board of directors believes that Mr. Miller's perspective and history as our Chief Executive Officer, as well as his executive, operational and commercial expertise, qualify him to serve on our board of directors.

Ramy A. Mahmoud, M.D., M.P.H. has served as our President and Chief Operating Officer since 2010. Prior to joining us, Dr. Mahmoud spent 14 years at Johnson & Johnson, where he served as Chief Medical Officer and a member of the Global Management Board of the Ethicon group of companies. During his tenure at Johnson & Johnson, he also held senior roles in the pharmaceutical sector. Dr. Mahmoud served for 10 years on active duty in the U.S. Army and an additional 10 years in the Army Reserves, achieving the rank of Lieutenant Colonel. During his military service, Dr. Mahmoud held various patient care, research, and academic positions, culminating in his position as the head of the Department of Epidemiology at the Walter Reed Army Institute of Research. He has published more than 50 peer-reviewed papers and textbook chapters, and has served as a scientific reviewer for a number of journals and textbooks. Dr. Mahmoud earned a Master of Healthcare Management and Policy degree from the Harvard School of Public Health and an M.D. from the University of Miami. He has earned board certification in both Public Health/Preventive Medicine and in Internal Medicine.

Thomas E. Gibbs has served as our Chief Commercial Officer since September 2016. From December 2015 to September 2016, Mr. Gibbs served as the Senior Vice President, Head of the General Medicines Business Unit for the United States at Takeda Pharmaceutical Company Limited, a global pharmaceutical company. From March 2015 to December 2015, Mr. Gibbs served as Chief Commercial Officer for the U.S. and E.U. commercial organizations of Vanda Pharmaceuticals, Inc., a global biopharmaceutical company. From January 2010 to March 2015, Mr. Gibbs held a series of commercial leadership roles with increasing responsibility at Bristol-Myers Squibb, a pharmaceutical company, including Vice President of Worldwide Commercial Operations. From June 2006 to January 2010, Mr. Gibbs worked at Novartis Vaccines & Diagnostics, Inc., a vaccines manufacturer, where he held multiple commercial leadership roles including serving as Vice President of U.S. Sales from November 2007 to January 2010. Mr. Gibbs holds a B.S. in Economics and an M.B.A. from The Wharton School at the University of Pennsylvania.

Keith A. Goldan has served as our Chief Financial Officer since January 2017. From March 2015 to January 2017, Mr. Goldan served as Senior Vice President, Chief Financial Officer and Treasurer of Fibrocell Science, Inc., a publicly-held gene therapy company, and also served as its Corporate Secretary from March 2015 to June 2015. From March 2014 to March 2015, Mr. Goldan served as a financial and operational consultant to companies in the pharmaceutical industry. From November 2008 to March 2014, Mr. Goldan served as Senior Vice President and Chief Financial Officer of NuPathe Inc., a specialty pharmaceutical company that was acquired by Teva Pharmaceutical Industries Ltd. Mr. Goldan previously served as Chief Financial Officer and a member of the board of directors of PuriCore plc, a medical technology company listed on the London Stock Exchange. Earlier in his career, Mr. Goldan served as Vice President and Chief Financial Officer of Biosyn, Inc., a specialty pharmaceutical company, and in a variety of roles with ViroPharma and the Healthcare & Life Sciences Practice of KPMG. Mr. Goldan earned a B.S. in Finance from the Robert H. Smith School of Business at the University of Maryland and an M.B.A. from The Wharton School at the University of Pennsylvania.

Michael F. Marino has served as our Chief Legal Officer and Corporate Secretary since January 2017. From June 2015 to January 2017, Mr. Marino served as Senior Vice President, General Counsel and Corporate Secretary of Fibrocell Science, Inc., a publicly-held gene therapy company. From March 2014 to June 2015, Mr. Marino served as a legal consultant in the life sciences industry. From October 2010 to March 2014, Mr. Marino served as Senior Vice President, General Counsel and Corporate Secretary of NuPathe Inc., a specialty pharmaceutical company that was acquired by Teva Pharmaceutical Industries Ltd. Mr. Marino was previously an attorney at the law firms of Morgan, Lewis & Bockius LLP and WilmerHale LLP. Mr. Marino earned a B.S. in Accountancy from Villanova University and a J.D. from Boston College Law School.

Non-Management Directors

Larry G. Pickering has served as a director of our company since 2010. From January 2008 to September 2012, Mr. Pickering served as Chairman of the board of directors of Lantheus Medical Imaging, Inc., a medical imaging company with public securities. Previously, he served as Chairman of DLJMB Global Healthcare Partners, an investment firm. Mr. Pickering had a 32-year career in healthcare with Johnson & Johnson, where he served as President of Ortho Dermatology, President of Janssen Pharmaceuticals and Chairman of Janssen North America, Company Group Chairman, Worldwide OTC, Chairman of Johnson & Johnson Development Corporation and a Corporate Officer. Mr. Pickering retired from Johnson & Johnson in 2005. He holds a B.B.A. from the University of Missouri. Our board of directors believes that Mr. Pickering's extensive senior management experience in the pharmaceutical industry qualifies him for service on our board of directors.

Klaas de Boer has served as a director of our company since 2010. Mr. de Boer has served as the Managing Partner of Entrepreneurs Fund Management LP, a venture capital fund, since 2008. From 2001 to 2006, Mr. de Boer served as the Managing Director of Tsjukemar Ltd., a venture capital consulting firm. Mr. de Boer previously served as a consultant at the firms of McKinsey & Company and Vanenburg Group. Mr. de Boer holds an M.S. from Delft University of Technology and an M.B.A. from INSEAD. Our board of directors

believes that Mr. de Boer's business experience, including service on the board of directors of a number of life sciences companies, qualifies him to serve on our board of directors.

Per Gisle Djupesland, M.D., Ph.D. has served as a director of our company since 2010. Dr. Djupesland is a practicing ear, nose and throat doctor and has served as the Chief Scientific Officer of OptiNose AS since 2000. Earlier in his career, he acted as the project manager of a large scale vaccination trial in the Norwegian Armed Forces in which 55,000 conscripts were vaccinated with a new vaccine against Meningococcus B developed by the National Institute of Public Health in Norway. He has worked with HIV/AIDS epidemiology at the Institute of Public Health in Norway. Dr. Djupesland currently serves as the chairman of the board of directors of IKOS Invest AS, Ikos Subsidiary AS and Nesensia AS, and serves as a member of the board of directors of OptiNose UK Ltd. and OptiNose AS, having served as the chairman of the board of directors of OptiNose AS from 2000 to 2010. Dr. Djupesland received both his Ph.D. and M.D. from The University of Oslo, Faculty of Medicine and has been a Research Fellow at The University of Toronto. Our board of directors believes that Dr. Djupesland's perspective and business experience as the founder of OptiNose AS and an inventor of our EDS, coupled with his extensive scientific acumen in the field of rhinology, qualifies him to serve on our board of directors.

William F. Doyle has served as a director of our company since 2010. Mr. Doyle is the Executive Chairman of Novocure Ltd., a commercial stage oncology company; and the Executive Chairman of Blink Health Ltd., a private technology company providing Americans with affordable access to prescription medications. Since 2003, Mr. Doyle has been the managing partner of WFD Ventures LLC, a private venture capital firm he co-founded, and from 2014 to 2016 he was a member of the investment team of Pershing Square Capital Management L.P., a private investment firm. Previously, Mr. Doyle served as a member of Johnson & Johnson's Medical Devices and Diagnostics Group Operating Committee and was vice president, Licensing and Acquisitions. While at Johnson & Johnson, Mr. Doyle was also chairman of the Medical Devices Research and Development Council and worldwide president of Biosense-Webster, Inc. Earlier in his career, Mr. Doyle was a management consultant in the healthcare group of McKinsey & Company. In addition to serving as chairman of Novocure, within the past five years, Mr. Doyle served as director of Zoetis, Inc., an animal medicine and vaccine company. Mr. Doyle holds an S.B. in materials science and engineering from the Massachusetts Institute of Technology and an M.B.A. from Harvard Business School. Our board of directors believes that Mr. Doyle's expertise in medical device commercialization and his significant experience in the advanced technology and healthcare industries as an entrepreneur, executive, management consultant and investor, qualifies him to serve on our board of directors.

Patrick O'Neill has served as a director of our company since 2010. Since 2008, Dr. O'Neill has served as an Industry Advisor for Avista Capital Partners, or Avista. From 1976 until his retirement in 2006, he served in a number of management roles in research and development and business development at Johnson & Johnson, including leadership positions in Johnson & Johnson's pharmaceutical business, its Medical Devices and Diagnostics Group, and its surgical and interventional cardiology/radiology business units. Following his retirement from Johnson & Johnson, he served as Executive in Residence at New Enterprise Associates, a venture capital firm, from 2006 to 2007. Dr. O'Neill holds a B.S. in Pharmacy and a Ph.D. in Pharmacology from The Ohio State University. Dr. O'Neill is a member of the board of directors of Zest Anchors, Inc. Within the past five years, he has served as a director of Lantheus Holdings, Inc., a publicly-held medical imaging company. Our board of directors believes that Dr. O'Neill's experience in the pharmaceutical industry, including his participation in the development of pharmaceutical products, provides valuable insight into strategic business decisions and qualifies him to serve on our board of directors.

Sriram Venkataraman has served as a director of our company since 2010. He is also a Partner of Avista, having joined in 2007. Prior to joining Avista, Mr. Venkataraman was a Vice President in the Healthcare Investment Banking group at Credit Suisse Group AG having worked there from 2001 to 2007. Previously, he worked at GE Healthcare (formerly known as GE Medical Systems) from 1996 to 1999.

Mr. Venkataraman holds an M.S. in Electrical Engineering from the University of Illinois, Urbana-Champaign and an M.B.A. from The Wharton School at the University of Pennsylvania. He currently serves as a director of Osmotica Holdings S.C.Sp, National Spine & Pain Centers Holdings, LLC, and Zest Anchors, Inc. Mr. Venkataraman previously served as a director of AngioDynamics Inc. and Lantheus Holdings Inc. Our board of directors believes that Mr. Venkataraman's experience in the healthcare industry, his strong finance and management background, and his experience serving as a director of private and public companies qualifies him to serve on our board of directors.

Joshua A. Tamaroff has served as a director of our company since March 2017. Mr. Tamaroff joined Avista in 2009 and serves as a Vice President. Prior to joining Avista, Mr. Tamaroff worked as an Analyst in the leveraged finance group at Lehman Brothers and Barclays Capital. Mr. Tamaroff currently serves as a director of IWCO Direct and WideOpenWest, Inc. Mr. Tamaroff previously served as a director of InvestorPlace Media. Mr. Tamaroff received a B.S. from Cornell University and a M.B.A. from The Wharton School at the University of Pennsylvania, where he was a Palmer Scholar. Our board of directors believes that Mr. Tamaroff's private equity investment and company oversight experience and background with respect to acquisitions, debt financings and equity financings qualifies him to serve on our board of directors.

Board Composition

Our business and affairs are managed under the direction of our board of directors, which currently consists of eight members. Immediately following the closing of this offering, our fourth amended and restated certificate of incorporation and amended and restated bylaws will provide that our board of directors will consist of a number of directors, not less than three nor more than twelve, to be fixed exclusively by resolution of our board of directors.

In accordance with our fourth amended and restated certificate of incorporation which will be effective immediately following the closing of this offering, our board of directors will be divided into three classes. At each annual meeting of stockholders, the successors to directors whose terms then expire will be elected to serve from the time of election and qualification until the third annual meeting following election. Our directors will be divided among the three classes as follows:

- The class I directors will be , and , and their terms will expire at the annual meeting of stockholders to be held in 2018;
- The class II directors will be will be , and , and their terms will expire at the annual meeting of stockholders to be held in 2019; and
- The class III directors will be will be and , and their terms will expire at the annual meeting of stockholders to be held in 2020.

Any increase or decrease in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors. The classification of our board of directors may have the effect of delaying or preventing changes in control of our company.

Director Independence and Controlled Company Exemptions

Upon the closing of this offering, Avista Capital Partners, or Avista, and TKWD Ventures LLC, or TKWD, will collectively beneficially own a controlling interest in us. We intend to avail ourselves of the controlled company exemptions under the NASDAQ listing rules. As a controlled company, we will not be required to have a majority of "independent directors" on our board of directors as defined under NASDAQ listing rules or to have a compensation committee or a board committee performing the board nominating function composed entirely of independent directors. Since we intend to avail ourselves of the "controlled company" exemption under the NASDAQ listing rules, neither our nominating and corporate governance committee nor our compensation committee will be composed entirely of independent directors. The "controlled company" exemption does not modify the independence requirements for the audit committee, and we intend to

comply with the requirements of Rule 10A-3 of the Exchange Act and the NASDAQ listing rules, which rules require that our audit committee be composed of at least three members, a majority of whom will be independent within 90 days of the date of this prospectus, and all of whom will be independent within one year of the date of this prospectus. Similarly, once we are no longer a "controlled company," we must comply with the independent board committee requirements as they relate to the compensation committee and the nominating and corporate governance committee, on the same phase-in schedule as set forth above, with the trigger date being the date we are no longer a "controlled company" as opposed to our initial public offering date. Additionally, we will have 12 months from the date we cease to be a "controlled company" to have a majority of independent directors on our board of directors.

No director will be deemed to be independent unless our board of directors determines that the director has no relationship which would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. Our board of directors has determined that Messrs. , and are independent as defined under the NASDAQ listing rules. Of these independent directors, our board of directors has determined that: (i) Messrs. , and , who will comprise our audit committee; (ii) Messrs. , and , who will comprise our compensation committee; and (iii) Messrs. , and , who will comprise our nominating and corporate governance committee, each satisfy the independence standards for those committees established by the applicable rules and regulations of the SEC and the NASDAQ listing rules.

Second Amended and Restated Shareholders' Agreement

In connection with this offering, we expect to enter into an amendment to our Second Amended and Restated Shareholders' Agreement, or the Shareholders' Agreement. The Shareholders' Agreement will provide, among other things, that each of Avista and TKWD will have the rights to nominate:

- for Avista, (i) two directors to our board of directors for so long as Avista owns 17.5% or more of our then-outstanding shares of common stock, and (ii) one director to our board of directors for so long as Avista owns less than 17.5% but 7.5% or more of our then-outstanding shares of common stock; and

- for TKWD, one director to our board of directors for so long as TKWD owns 7.5% or more of our outstanding shares of common stock.

The initial Avista nominees will be Messrs. Venkataraman and Tamaroff. The initial TKWD nominee will be Mr. Doyle. We will be required to take all necessary action to ensure the composition of our board of directors as set forth above. See "Certain Relationships and Related Party Transactions — Second Amended and Restated Shareholders' Agreement."

Board Leadership Structure

Our board of directors is currently chaired by Mr. Pickering. As a general policy, our board of directors believes that separation of the positions of chairman and chief executive officer reinforces the independence of our board of directors from management, creates an environment that encourages objective oversight of management's performance and enhances the effectiveness of our board of directors as a whole.

Role of the Board in Risk Oversight

One of the key functions of our board of directors is informed oversight of our risk management process. Our board of directors does not have a standing risk management committee, but rather administers this oversight function directly through our board of directors as a whole, as well as through various standing committees of our board of directors that address risks inherent in their respective areas of oversight. In particular, our board of directors is responsible for monitoring and assessing strategic risk exposure and our audit committee has the responsibility to consider and discuss our major financial risk exposures and the

steps our management has taken to monitor and control these exposures, including adopting guidelines and policies to govern the process by which risk assessment and management is undertaken. While our board of directors maintains the ultimate oversight responsibility for the risk management process, its committees oversee risk in certain specified areas. For example:

- Our audit committee oversees management of financial reporting, compliance and litigation risks, including risks related to our insurance, information technology, human resources and regulatory matters, as well as the steps management has taken to monitor and control such exposures.
- Our compensation committee is responsible for overseeing the management of risks relating to our executive compensation policies, plans and arrangements and the extent to which those policies or practices increase or decrease risks for our company.
- Our nominating and corporate governance committee manages risks associated with the independence of our board of directors, potential conflicts of interest and the effectiveness of our board of directors.

Board Committees

Our board of directors has established, or will establish prior to the closing of this offering, an audit committee, a compensation committee and a nominating and corporate governance committee. Each committee will operate under a charter approved by our board of directors and will be available on our website, www.optinose.com, under the "Investor Relations" section, upon the effective date of the registration statement of which this prospectus is a part. The information contained in, or that can be accessed through, our website is not part of this prospectus.

Audit Committee

Upon the closing of this offering, our audit committee will consist of , and and will be chaired by . The primary purpose of our audit committee is to assist our board of directors by providing oversight of our financial management, independent auditor and financial reporting procedures, as well as such other matters as directed by our board of directors or the audit committee charter that will be effective upon the effective date of the registration statement of which this prospectus is a part. Among other things, the audit committee's responsibilities include:

- appointing, retaining, compensating, overseeing, evaluating, and, when appropriate, terminating our independent registered public accounting firm;
- approving in advance all audit services and non-audit services to be provided to us by our independent auditor;
- discussing with management and our independent registered public accounting firm our annual and quarterly consolidated financial statements and related disclosures;
- reviewing with management its assessment of our internal control over financial reporting and disclosure controls and procedures;
- reviewing our Code of Business Conduct and Ethics and recommending any changes to our board of directors;
- overseeing our risk assessment and risk management processes;
- establishing procedures for the receipt, retention and treatment of complaints received by us regarding accounting, internal accounting controls, auditing or compliance matters, as well as for the confidential, anonymous submission by our employees of concerns regarding questionable accounting or auditing matters;
- reviewing and ratifying all related party transactions, based on the standards set forth in our related party transactions policy; and
- preparing and approving the audit committee report required to be included in our annual proxy statement.

Our audit committee will review related party transactions for potential conflicts of interests in accordance with our related party transactions policy. See "Certain Relationships and Related Party Transactions — Policies and Procedures for Transactions with Related Persons."

Our board of directors has determined that each of the members of the audit committee satisfy the financial literacy and sophistication requirements of the SEC and the listing rules of The NASDAQ Stock Market, LLC, or NASDAQ. In addition, our board of directors has determined that qualifies as an audit committee financial expert, as defined in Item 407(d)(5) of Regulation S-K promulgated under the Securities Act.

Both our independent registered public accounting firm and management periodically will meet privately with our audit committee.

Compensation Committee

Upon the closing of this offering, our compensation committee will consist of , and , and will be chaired by . The primary purpose of our compensation committee is to review the performance and development of our management in achieving corporate goals and objectives and assure that our executive officers, including our chief executive officer, or CEO, are compensated effectively in a manner consistent with our strategy, competitive practice and stockholder interests, as well as such other matters as directed by our board of directors or the compensation committee charter that will be effective upon the effective date of the registration statement of which this prospectus is a part. Among other things, the compensation committee's responsibilities include:

- annually reviewing and recommending to our board of directors for approval the corporate goals and objectives applicable to the compensation of our CEO and other executive officers and evaluating at least annually our CEO's and other executive officers' performance in light of those goals and objectives;
- determining and approving our CEO's and other executive officers' compensation level, including salary, cash, equity-based incentive awards and any personal benefits;
- administering, or where appropriate, overseeing the administration of, executive and equity compensation plans and such other compensation and benefit plans that are adopted by us from time to time;
- establishing policies and making recommendations to our board of directors regarding director compensation;
- determining stock ownership guidelines for our CEO and other executive officers and monitoring compliance with such guidelines, if deemed advisable by our board of directors or the compensation committee; and
- overseeing risks and exposures associated with executive compensation plans and arrangements.

Nominating and Corporate Governance Committee

Upon the closing of this offering, our nominating and corporate governance committee will consist of , and , and will be chaired by . Specific responsibilities of our nominating and corporate governance committee include:

- assessing the need for new directors and developing and submitting to our board of directors for its adoption a list of selection criteria for new directors to serve on our board of directors;
- identifying, reviewing and evaluating candidates, including candidates submitted by stockholders, for election to our board of directors and recommending to our board of directors (i) nominees to fill vacancies or new positions on our board of directors and (ii) the slate of nominees to stand for election by our stockholders at each annual meeting of stockholders;
- developing, recommending, overseeing the implementation of and monitoring compliance with, our corporate governance guidelines, and periodically reviewing and recommending any necessary or appropriate changes to our corporate governance guidelines;

- annually recommending to our board of directors (i) the assignment of directors to serve on each committee; (ii) the chairperson of each committee and (iii) the chairperson of our board of directors or lead independent director, as appropriate;
- reviewing the adequacy of our certificate of incorporation and bylaws and recommending to our board of directors, as conditions dictate, amendments for consideration by the stockholders;
- implementing policies with respect to risk oversight, assessment and management of risk associated with the independence of our board of directors, potential conflicts of interest and the effectiveness of our board of directors; and
- such other matters as directed by our board of directors or the nominating and corporate governance committee charter that will be effective upon the effective date of the registration statement of which this prospectus is a part.

Code of Business Conduct and Ethics

In connection with this offering, our board of directors will adopt a Code of Business Conduct and Ethics applicable to all of our employees, executive officers and directors. The Code of Business Conduct and Ethics will cover fundamental ethical and compliance-related principles and practices such as accurate accounting records and financial reporting, avoiding conflicts of interest, the protection and use of our property and information and compliance with legal and regulatory requirements. The Code of Business Conduct and Ethics will be available on our website at www.optinose.com upon the listing of our common stock on The NASDAQ Global Market. The audit committee of our board of directors will be responsible for overseeing the Code of Business Conduct and Ethics and must approve any waivers of the Code of Business Conduct and Ethics for employees, executive officers or directors. Disclosure regarding any amendments to the Code of Business Conduct and Ethics, or any waivers of its requirements, will be disclosed on our website. The information contained in, or that can be accessed through, our website is not part of this prospectus.

Compensation Committee Interlocks and Insider Participation

No member of our compensation committee has served as one of our officers or employees at any time. None of our executive officers serve as a member of the compensation committee of any other company that has an executive officer serving as a member of our board of directors. None of our executive officers serve as a member of the board of directors of any other company that has an executive officer serving as a member of our compensation committee.

Limitation on Liability and Indemnification Matters

Our fourth amended and restated certificate of incorporation and our amended and restated bylaws, each of which will be effective immediately following the closing of this offering, limits our directors' liability to the fullest extent permitted under Delaware General Corporation Law, or the DGCL. The DGCL provides that directors of a corporation will not be personally liable for monetary damages for breach of their fiduciary duties as directors, except for liability for any:

- transaction from which the director derives an improper personal benefit;
- act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payment of dividends or redemption of shares; or
- breach of a director's duty of loyalty to the corporation or its stockholders.

Delaware law and our amended and restated bylaws provide that we will, in certain situations, indemnify our directors and officers and may indemnify other employees and other agents, to the fullest extent permitted by law. Any indemnified person is also entitled, subject to certain limitations, to payment or reimbursement of reasonable expenses, including attorneys' fees and disbursements, in advance of the final disposition of the proceeding.

We have also entered, or intend to enter, into separate indemnification agreements with our directors and executive officers. Subject to specified exemptions, these agreements, among other things, require us to indemnify our directors and executive officers for related expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by a director or an executive officer in any action or proceeding arising out of his or her services as one of our directors or officers or any other company or enterprise to which the person provides services at our request.

We believe that these provisions in our fourth amended and restated certificate of incorporation and amended and restated bylaws and these indemnification agreements are necessary to attract and retain qualified persons as directors and officers.

We maintain a directors' and officers' insurance policy pursuant to which our directors and officers are insured against liability for actions taken in their capacities as directors and officers.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or control persons, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

The limitation of liability and indemnification provisions in our fourth amended and restated certificate of incorporation and amended bylaws may discourage stockholders from bringing a lawsuit against our directors for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and other stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage awards against directors and officers as required by these indemnification provisions. At present, there is no pending litigation or proceeding involving any of our directors, officers or employees for which indemnification is sought and we are not aware of any threatened litigation that may result in claims for indemnification.

EXECUTIVE AND DIRECTOR COMPENSATION

Our named executive officers for the year ended December 31, 2016, which consists of our principal executive officer and our two other most highly compensated executive officers, are:

- Peter K. Miller, our Chief Executive Officer;
- Ramy A. Mahmoud, our President and Chief Operating Officer; and
- Thomas E. Gibbs, our Chief Commercial Officer.

Summary Compensation Table

The following table provides information regarding the compensation awarded to, earned by or paid to our named executive officers for the year ended December 31, 2016.

Name and Principal Position	Year	Salary ($)	Option Awards ($)[1]	Non-Equity Incentive Compensation[2]	All Other Compensation ($)[3]	Total ($)
Peter K. Miller *Chief Executive Officer*	2016	488,283	246,590	630,552	715	1,366,140
Ramy A. Mahmoud *President and Chief Operating Officer*	2016	412,463	—	433,514	12,038	858,015
Thomas E. Gibbs[4] *Chief Commercial Officer*	2016	110,817	1,154,164	47,554	197	1,312,732

(1) The amounts in this column represent the aggregate grant date fair value of the options granted during calendar year 2016. The grant date fair value of the options was computed in accordance with Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC, Topic 718. These amounts do not necessarily correspond to the actual value that may be realized by the executive in connection with his option awards. The assumptions made in valuing the option awards reported in this column are described in Note 11 to our consolidated financial statements included in this prospectus.

(2) The amounts in this column represent performance bonuses earned by the named executive officers in the calendar year 2016 based upon the achievement of pre-established performance objectives. See "— Non-Equity Incentive Plan Compensation" below.

(3) Represents the dollar value of life insurance premiums paid by us for the benefit of the named executive officer.

(4) Mr. Gibbs's employment as our Chief Commercial Officer commenced on September 15, 2016.

Employment Agreements

We have employment or letter agreements with each of our named executive officers. The following is a summary of the material terms of each agreement. For complete terms, please see the respective agreements attached as exhibits to the registration statement of which this prospectus forms a part.

Peter K. Miller

On May 27, 2010, we entered into an employment agreement with Mr. Miller. The agreement provides for an initial three-year employment term with automatic renewals for successive one-year periods, unless we provide Mr. Miller with written notice of non-renewal at least 90 days prior to the end of the applicable expiration date. The agreement provides for a base salary to be reviewed annually by our board of directors, or a committee thereof, for potential increases. For calendar year 2016, Mr. Miller received a base salary at the rate of $465,629 per year through July 31, 2016, and at the rate of $520,000 per year from August 1, 2016 through December 31, 2016. Effective as of January 1, 2017, Mr. Miller's base salary was increased to $535,600 per year. Mr. Miller is entitled to receive certain termination benefits under his agreement,

which are described below in the section entitled "*Potential Payments Upon a Termination or Change in Control*."

Ramy A. Mahmoud

On June 18, 2010, we entered into a letter agreement with Dr. Mahmoud. The agreement provides for a base salary to be reviewed annually by our board of directors, or a committee thereof. For calendar year 2016, Dr. Mahmoud received a base salary at the rate of $403,508 per year through July 31, 2016, and at the rate of $425,000 per year from August 1, 2016 through December 31, 2016. Effective as of January 1, 2017, Dr. Mahmoud's base salary was increased to $437,750 per year. The agreement also provides that we will pay the premiums for a term life insurance policy for Dr. Mahmoud that has a death benefit equal to approximately $3.0 million. Dr. Mahmoud is entitled to receive certain termination benefits under his agreement, which are described below in the section entitled "*Potential Payments Upon a Termination or Change in Control*."

Thomas E. Gibbs

On September 15, 2016, we entered into a letter agreement with Mr. Gibbs. The agreement provides for a base salary to be reviewed periodically by the Chief Executive Officer, President and Chief Operating Officer, or our board of directors, or a committee thereof. For the calendar year 2016, Mr. Gibbs received a base salary at a rate of $375,000. Effective January 1, 2017, Mr. Gibbs's base salary was increased to $386,250. Mr. Gibbs is entitled to receive certain termination benefits under his agreement, which are described below in the section entitled "*Potential Payments Upon a Termination or Change in Control*."

Non-Equity Incentive Plan Compensation

Each of our named executive officers are eligible to receive an annual performance bonus based on the achievement of corporate objectives as determined by our board of directors or a committee thereof. Each officer is assigned a target bonus expressed as a percentage of his base salary. Actual bonus payments may be higher or lower than the target bonus amount, as determined by our board of directors, or a committee thereof. The target bonus amounts for 2016 for Mr. Miller, Dr. Mahmoud and Mr. Gibbs were 60%, 50% and 45%, respectively. Mr. Gibbs's target bonus amount was prorated for the portion of 2016 during which he was employed by us. For 2016, Mr. Miller, Dr. Mahmoud and Mr. Gibbs earned annual performance bonuses based on the achievement of corporate objectives, consisting primarily of the submission of our NDA for XHANCE and progress with respect to pre-commercialization activities, in the amounts of $297,960, $202,938 and $47,554, respectively.

In addition, Mr. Miller and Dr. Mahmoud were also eligible to receive a performance bonus relating to the clinical development progress of XHANCE and the receipt of licensing revenue under the AVP-825 License Agreement. Based on the achievement of these objectives, Mr. Miller and Dr. Mahmoud earned bonuses in the amount of $332,592 and $230,576, respectively.

Actual bonus amounts paid with respect to 2016 are reflected in the "Non-Equity Incentive Plan Compensation" column of the Summary Compensation Table above.

2010 Stock Incentive Plan

We maintain the OptiNose, Inc. 2010 Stock Incentive Plan, which originally became effective on May 27, 2010, in order to enhance our and our affiliates' ability to attract and retain highly qualified officers, directors, key employees and other persons, and to motivate such persons to serve us and our affiliates and to expend maximum effort to improve our business results and earnings, by providing to such persons an opportunity to acquire or increase a direct proprietary interest in our operations and future success. Our board of directors approved the Amended and Restated 2010 Stock Incentive Plan, or the 2010 Plan, on , 2017, and such 2010 Plan was approved by our stockholders on , 2017. The 2010 Plan will be effective as of the effective date of the registration statement of which this prospectus is a part, or the Amendment Date. The following is a summary of the material terms of the 2010 Plan.

Shares Subject to the 2010 Plan

The number of shares of our common stock available for issuance under the 2010 Plan is , or the Share Limit. The Share Limit will automatically increase on January 1st of each year, during the term of the 2010 Plan, commencing on January 1 of the year following the year in which the completion of this offering occurs, in an amount equal to 4% of the total number of shares of our common stock outstanding on December 31st of the preceding calendar year; provided, that prior to the date of any such increase, our board of directors may determine that such increase will be less than the amount set forth above.

Reversion of Shares

If any shares covered by an award are not purchased or are forfeited or expire, or if any award otherwise terminates without delivery of any shares subject to the award or is settled in cash in lieu of shares, then the number of shares counted against the Share Limit with respect to such award will, to the extent of any such forfeiture, termination, expiration or settlement, again be available for issuance under the 2010 Plan.

Section 162(m) Limitations

The maximum number of shares of our common stock that may be granted under the 2010 Plan, pursuant to options or stock appreciation rights, or SARs, in a calendar year to any person eligible for an award, other than a non-employee director, is shares.

The maximum number of shares of our common stock that may be granted under the 2010 Plan, pursuant to awards other than options or SARs that are intended to be "qualified performance-based compensation" within the meaning of Section 162(m) of the Internal Revenue Code, or the Code, and are stock-denominated and are either stock- or cash-settled, in a calendar year to any person eligible for an award who is or could become a "covered employee" within the meaning of Section 162(m) of the Code is shares.

The maximum amount that may be paid as a cash-denominated performance-based award, whether or not cash-settled, that is intended to satisfy the requirements of Section 162(m) of the Code for qualified performance-based compensation for a performance period of 12 months or less to any person eligible for an award who is or could become a covered employee will be , and the maximum amount that may be paid as a cash-denominated performance-based award, whether or not cash-settled, that is intended to satisfy the requirements of Section 162(m) of the Code for qualified performance-based compensation for a performance period of greater than 12 months to any person eligible for an award who is or could become a covered employee will be $ times the number of years in the performance period.

Non-Employee Director Compensation Limit

The maximum number of shares of our common stock subject to awards granted during a single calendar year to any non-employee director, taken together with any cash fees paid to such non-employee director during the calendar year, will not exceed $ in total value (calculating the value of any such awards based on the grant date fair value of such awards for financial reporting purposes); provided, that our board of directors may make exceptions to this limit as set forth in the 2010 Plan.

Awards

The 2010 Plan provides for the grant of awards of stock options, SARs, restricted stock, restricted stock units, deferred stock units, unrestricted stock, dividend equivalent rights, performance shares or other performance-based awards, other equity-based awards and cash bonus awards.

Stock Options

Stock options granted under the 2010 Plan may be nonqualified stock options or incentive stock options within the meaning of Section 422 of the Code. Each option will become vested and exercisable at such times and under such conditions as our compensation committee may approve consistent with the terms of the 2010 Plan. No option may be exercisable more than ten years after the option grant date. Our compensation committee may include in the option agreement provisions specifying the period during which an option may be exercised following termination of the grantee's service.

The exercise price per share of our common stock for each option granted under the 2010 Plan may not be less than 100%, or 110% in the case of an incentive stock option granted to a stockholder who owns more than ten percent of our voting stock, of the fair market value of a share of our common stock on the option grant date, except in the case of an option granted upon assumption of, or in substitution for, outstanding awards previously granted under a compensatory plan by a business entity acquired or to be acquired by us or an affiliate of ours or with which we or an affiliate has combined or will combine.

Payment of the exercise price for shares purchased pursuant to the exercise of an option may be made in such forms as are approved by our compensation committee. These forms may include, in our compensation committee's discretion, cash, cash equivalents, shares of our common stock and net issuance.

Restricted Stock, Restricted Stock Units and Deferred Stock Units

Restricted stock is an award of our common stock on which vesting restrictions are imposed that subject such shares of our common stock to a substantial risk of forfeiture, as defined in Section 83 of the Code. A restricted stock unit is an award that represents a conditional right to receive shares of our common stock in the future and that may be made subject to the same types of restrictions and risk of forfeiture as restricted stock. A deferred stock unit is a restricted stock unit that may be settled at some point in the future at a time or times consistent with the requirements of Section 409A of the Code.

Subject to the provisions of the 2010 Plan, our compensation committee will determine the terms and conditions of each award of restricted stock, restricted stock units and deferred stock units, including the restricted period for all or a portion of the award, the restrictions applicable to the award and the purchase price, if any, for the shares of our common stock subject to the award. A grantee of restricted stock will have all the rights of a stockholder, including the right to vote the shares and receive dividends, except to the extent limited by our compensation committee. Grantees of restricted stock units and deferred stock units will have no voting or dividend rights or other rights associated with stock ownership, although our compensation committee may award dividend equivalent rights on such units. Grantees will not vest in dividends paid on awards of restricted stock or in dividend equivalent rights paid on awards of restricted stock units or deferred stock units unless and until the underlying award of restricted stock or stock units becomes vested and nonforfeitable.

Performance Shares and Other Performance-Based Awards

Performance-based awards are awards of options, restricted stock, restricted stock units, deferred stock units, SARs, other equity-based awards or cash made subject to the achievement of one or more pre-established performance goals over a performance period established by our compensation committee. Performance-based awards may be payable in cash or shares of our common stock, or a combination thereof, as determined by our compensation committee. An award of performance shares is a performance-based award representing a right or interest denominated or payable in stock, valued by reference to stock, or otherwise based on or related to stock that is made subject to the achievement of one or more pre-established performance goals over a performance period. Our compensation committee may award performance shares and other performance-based awards in such amounts and upon such terms as our compensation committee may determine. Each grant of a performance-based award will have an initial value or target number of shares of our common stock that is established by our compensation committee at the time of grant. Our compensation committee may set performance goals in its discretion which, depending on the extent to which they are met, will determine the value and number of performance shares or other performance-based awards that will be paid out to a grantee.

The performance goals that may be selected for awards that are intended to be "qualified performance-based compensation" within the meaning of Section 162(m) of the Code include one or more of the following (i) earnings before interest, taxes, depreciation, and/or amortization; (ii) earnings before interest, taxes, depreciation, and/or amortization as adjusted to exclude any one or more of the following: (a) stock-based compensation expense, (b) income from discontinued operations, (c) gain on cancellation of debt, (d) debt extinguishment and related costs, (e) restructuring, separation, and/or integration charges and

costs, (f) reorganization and/or recapitalization charges and costs, (g) impairment charges, (h) merger-related events, (i) gain or loss related to investments, (j) sales and use tax settlements, and (k) gain on non-monetary transactions; (iii) price-earnings multiples; (iv) revenue; (v) operating income, earnings, or profits; (vi) return measures, including return on equity, assets, revenue, capital, capital employed, or investment; (vii) pre-tax or after-tax operating income, earnings, or profits; (viii) net income; (ix) net capital employed; (x) growth in assets; (xi) earnings or book value per share; (xii) cash flow(s), including (a) operating cash flow, (b) free cash flow, (c) levered cash flow, (d) cash flow return on equity, and (e) cash flow return on investment; (xiii) unit volume; (xiv) total sales or revenues growth or targets or sales or revenues per employee, product, service, or customer; (xv) stock price, including growth measures and total stockholder return; (xvi) dividends; (xvii) strategic business objectives, consisting of one or more objectives based on meeting specified cost targets, business expansion goals, specified research and development goals and goals relating to acquisitions or divestitures or any combination thereof; (xviii) gross or operating margins; (xix) number of days sales outstanding in accounts receivable, and number of days of cost of sales in inventory; (xx) productivity ratios; (xxi) costs, reductions in cost, and cost control measures; (xxii) debt reduction; (xxiii) relative performance to a comparison group designated by the committee; (xxiv) expense targets; (xxv) market or market segment share, penetration or capitalization; (xxvi) financial ratios as provided in credit agreements of the us and our subsidiaries; (xxvii) working capital targets; (xxviii) regulatory achievements or compliance; (xxix) human resource programs, customer programs and customer satisfaction measurements; (xxx) customer growth and geographic business expansion goals; (xxxi) quality improvements, cycle time reductions, and manufacturing improvements and/or efficiencies; (xxxii) execution of contractual arrangements or satisfaction of contractual requirements or milestones; (xxxiii) product development achievements, including new product releases; (xxxiv) the achievement of research and development, or other strategic, milestones; (xxxv) litigation resolution; (xxxvi) licensing and partnership arrangements; (xxxvii) submission to, or approval by, a regulatory body (including, but not limited to the U.S. Food and Drug Administration) of an applicable filing or a product; (xxxviii) the achievement of, or progress toward, a launch of one or more new drug(s); (xxxix) payor coverage; (xl) clinical achievements (including initiating clinical studies; initiating enrollment, completing enrollment or enrolling particular numbers of subjects in clinical studies; completing phases of a clinical study (including the treatment phase); or announcing or presenting preliminary or final data from clinical studies; in each case, whether on particular timelines or generally); and (xli) any combination of the foregoing business criteria.

Stock Appreciation Rights

A SAR is a right to receive upon exercise, in the form of common stock, cash or a combination of common stock and cash, the excess of the fair market value of one share of common stock on the exercise date over the grant price of the SAR. SARs may be granted in conjunction with all or a part of any option or other award granted under the 2010 Plan, or without regard to any option or other award. Our compensation committee will determine at the SAR grant date or thereafter the time or times at which and the circumstances under which a SAR may be exercised in whole or in part, the time or times at which and the circumstances under which a SAR will cease to be exercisable, the method of exercise, the method of settlement, the form of consideration payable in settlement, the method by which shares will be delivered or deemed delivered to grantees, and any other terms or conditions of any SAR.

Upon exercise of a SAR, the holder will be entitled to receive, in the specified form of consideration, the excess of the fair market value of one share of our common stock on the exercise date over the exercise price of the SAR, as determined by our compensation committee. The exercise price of a SAR may not be less than the fair market value of a share of our common stock on the grant date.

Other Equity-Based Awards

Our compensation committee may grant other types of equity-based or equity-related awards in such amounts and subject to such terms and conditions as our compensation committee may determine, including unrestricted stock and dividend equivalent rights which are described in more detail in the 2010 Plan.

Award Eligibility

Awards under the 2010 Plan may be made to our or any of our affiliates' employees, officers and directors, as well as to consultants and advisors currently providing services to us or any of our affiliates at the time of such award.

Plan Administration

The 2010 Plan is administered by our compensation committee.

Changes to Capital Structure

In the event of a merger, reorganization, recapitalization, reclassification, stock split, reverse stock split, spin-off combination of shares, exchange of shares, stock dividend or other distribution payable in capital stock, or other increase or decrease in such shares effected without the receipt of consideration by us, then the number and kind of shares for which grants of options and other awards may be made under the 2010 Plan, and the individual share limitations described above, will be adjusted proportionately and accordingly by our compensation committee. In addition, the number and kind of shares for which awards are outstanding, as well as the exercise price of outstanding options and SARs will be adjusted proportionately and accordingly by our compensation committee.

Change of Control

Except as otherwise provided in the applicable award agreement, upon the occurrence of a change of control of our company in which outstanding awards are not being assumed or continued, the following provisions will apply to the awards: (i) except for performance-based awards, all shares of restricted stock, restricted stock units, deferred stock units and dividend equivalent rights will be deemed to have vested and any underlying shares of our common stock will be deemed delivered immediately before the change of control; and (ii) at our compensation committee's discretion, either all options and SARs will become exercisable fifteen days before the change of control (with any exercise of an option or SAR during such fifteen day period to be contingent upon the consummation of the change of control) and terminate upon the change of control to the extent not exercised, or all options, SARs, shares of restricted stock, restricted stock units, deferred stock units and/or dividend equivalent rights will be canceled and cashed out in connection with the change of control.

In the case of performance-based awards, if less than half of the performance period has lapsed, the award will be treated as though target performance has been achieved. If at least half of the performance period has lapsed, actual performance to date will be determined as of a date reasonably proximal to the date of the consummation of the change of control, as determined by our compensation committee in its sole discretion, and that level of performance will be treated as achieved immediately prior to the occurrence of the change of control. If our compensation committee determines that actual performance is not determinable, the award will be treated as though target performance has been achieved. Any awards that arise after performance is determined in accordance with this paragraph will be treated as set forth in the preceding paragraph. Other equity-based awards will be governed by the terms of the applicable award agreement.

If we experience a change of control in which outstanding awards that are not exercised prior to the change of control will be assumed or continued by the surviving entity, then, except as otherwise provided in the applicable award agreement, in another agreement with the grantee, or as otherwise set forth in writing, upon the occurrence of the change of control, the 2010 Plan and the awards granted under the 2010 Plan will continue in the manner and under the terms so provided in the event of the change of control to the extent that provision is made in writing in connection with such change of control for the assumption or continuation of such awards, or for the substitution for such awards with new awards, with appropriate adjustments as to the number of shares (disregarding any consideration that is not common stock) and exercise prices of options and SARs.

In the event a grantee's award is assumed, continued, or substituted upon the consummation of any change of control and the service of such grantee with us or an affiliate of ours is terminated without cause, as defined in the 2010 Plan, within one year, or such longer or shorter period as may be determined by our compensation committee, following the consummation of such change of control, such award will be fully vested and may be exercised in full, to the extent applicable, beginning on the date of such termination and for the one-year period, or such longer or shorter period as may be determined by our compensation committee, immediately following such termination.

The term change of control is generally defined under the 2010 Plan to include (i) the acquisition by a person or entity of 50% or more of our combined voting power; (ii) when a majority of our board of directors becomes comprised of individuals who were not serving on our board of directors as of the Amendment Date; (iii) a consummated merger or consolidation immediately after which our stockholders cease to own 50% or more of the combined voting power of the surviving entity; (iv) a consummated sale, lease or exclusive license or other disposition of all or substantially all of our assets; and (v) a complete dissolution or liquidation of the company.

Plan Amendment and Termination

Our board of directors may amend, suspend or terminate the 2010 Plan at any time, provided that if our board of directors determines that the rights of a grantee with respect to an award granted prior to such amendment, suspension or termination may be materially impaired, the consent of such grantee will be required or the terms of his or her award will continue to be governed by the 2010 Plan without giving effect to any such amendment. An amendment to the 2010 Plan will be contingent upon approval of our stockholders to the extent required by applicable law, regulations or rules, our fourth amended and restated certificate of incorporation, which will be in effect immediately following the closing of this offering, or any agreement between us and our stockholders. The 2010 Plan will terminate automatically on , 2027, unless earlier terminated by our board of directors.

Option Awards Granted During Fiscal Year 2016

On December 20, 2016, we granted stock options to Messrs. Miller and Gibbs for 25,000 shares and 50,000 shares, respectively, with an exercise price of $14.85 per share, which was equal to the fair value of our common stock on the date of grant. Subject to the executive's continued employment on each applicable vesting date, 25% of the shares underlying these options vested on September 1, 2017 for Mr. Miller and September 15, 2017 for Mr. Gibbs, with the remainder vesting in equal monthly installments thereafter through September 1, 2020 in the case of Mr. Miller and September 15, 2020 in the case of Mr. Gibbs. The vesting of these options is subject to acceleration upon a change of control of our company.

On December 20, 2016, we granted an additional stock option to Mr. Gibbs to purchase 100,000 shares of our common stock at an exercise price of $47.10 per share, which were granted from our "Success Option Pool." Subject to his continued employment on each applicable vesting date, 25% of the shares underlying this option vested on September 15, 2017, with the remainder vesting in three annual installments thereafter through September 15, 2020. In addition to this time-based vesting, this option will only be exercisable by Mr. Gibbs in the event of a change of control, as defined in the 2010 Plan, or upon the completion of an initial public offering.

2017 Employee Stock Purchase Plan

Our board of directors adopted the 2017 Employee Stock Purchase Plan, or the 2017 ESPP, on , 2017, and our stockholders approved the 2017 ESPP on , 2017. The 2017 ESPP will become effective on the effective date of the registration statement of which this prospectus is a part. The purpose of the 2017 ESPP is to encourage and to enable eligible employees to acquire proprietary interests in us through the purchase and ownership of shares of our common stock. The 2017 ESPP is intended to benefit us and our stockholders by incentivizing participants to contribute to our success and to operate and manage our business in a manner that will provide for our long-term growth and profitability

and that will benefit our stockholders and other important stakeholders. The 2017 ESPP is intended to qualify as an 'employee stock purchase plan' within the meaning of Section 423 of the Code.

Share Reserve

The 2017 ESPP will authorize the issuance of up to shares of our common stock pursuant to purchase rights granted to our employees or to employees of any of our participating affiliates. The number of shares of our common stock reserved for issuance will automatically increase on January 1st of each year, commencing on January 1, 2018 and continuing until the expiration of the 2017 ESPP, in an amount equal to 1% of the total number of shares of our common stock outstanding on December 31st of the preceding calendar year; provided, that prior to the date of any such increase, the Administrator (as defined below) may determine that such increase will be for a lesser number of shares.

Administration

The 2017 ESPP will be administered under the direction of our board of directors, our compensation committee, or any other committee designated by our board of directors, or the Administrator. The 2017 ESPP will be implemented through a series of offerings under which eligible employees are granted purchase rights to purchase common stock on specified dates during such offerings. The Administrator will determine offering periods of not more than 27 months and may permit periodic purchases of our common stock within a single offering period. An offering under the 2017 ESPP may be terminated under certain circumstances.

Eligibility

All of our employees who have been employed by us or our participating affiliates for at least three months may be eligible to participate in the 2017 ESPP, provided that the following employees are among those that are ineligible under the 2017 ESPP: (i) employees whose customary employment is 20 hours or less per week; (ii) employees whose customary employment is for not more than five months in any calendar year; and (iii) employees who, after exercising their rights to purchase our common stock under the 2017 ESPP, would own 5% or more of our total combined voting power.

No employee may purchase shares of our common stock in any calendar year under the 2017 ESPP and under all other employee stock purchase plans having an aggregate fair market value in excess of $25,000, determined as of the first trading day of the offering period. In addition, unless otherwise determined by the Administrator, no employee may purchase more than shares of our common stock in any one offering period.

Payroll Deductions and Purchase Price

Generally, all employees, including executive officers, employed by us or by any of our participating affiliates, may participate in the 2017 ESPP and may contribute, normally through payroll deductions, up to 15% of their eligible compensation for the purchase of our common stock under the 2017 ESPP. Unless otherwise determined by the Administrator, the purchase price per share of our common stock under the 2017 ESPP will be 85% of the lesser of the average of the high and low sales price of our common stock on (i) the first trading day of the relevant offering period and (ii) the last trading day of the relevant offering period (or, if the relevant offering period has multiple purchase periods, the last trading day of the relevant purchase period).

Limitations on the Sale of Shares

The Administrator has the right to (i) require that an employee not request that all or a part of the shares of our common stock purchased by the employee be reissued in the employee's own name and shares be delivered to the employee until two years have elapsed since the offering date of the offering period in which the shares of our common stock were purchased and one year has elapsed since the day the shares of our common stock were purchased, or the holding period, (ii) require that any sales of our common stock during the holding period be performed through a licensed broker acceptable to us and (iii) limit sales or other transfers of shares of our common stock for up to two years from the date the employee purchases shares of our common stock under the 2017 ESPP.

Corporate Transactions

In the event that there occurs a change in our capital structure through such actions as a recapitalization, stock split, reverse stock split, spin-off, combination of shares, exchange of shares, stock dividend or other distribution payable in capital stock, the Administrator will make appropriate adjustments to the number and kind of shares that may be purchased, and the number and kind of shares for which options are outstanding, under the 2017 ESPP.

In the event of certain significant corporate transactions, including (i) a dissolution or liquidation, (ii) a merger, consolidation or reorganization where we are not the surviving entity, (iii) a sale of all or substantially all of our assets, or (iv) a merger or consolidation resulting in any person or entity owning more than 50% of the combined voting power of all classes of our capital stock, the 2017 ESPP and all elections outstanding thereunder will terminate, except for certain situations where, for instance, the parties make arrangements for the continuation or assumption of the 2017 ESPP.

Amendment, Suspension, or Termination

The 2017 ESPP will terminate on the day before the 10th anniversary of the date of adoption of the 2017 ESPP by our board of directors, unless earlier terminated. The Administrator may amend, suspend, or terminate the 2017 ESPP; provided, however, that such amendment, suspension, or termination may not impair any vested rights without the employee's consent. The Administrator may not increase the number of shares reserved for issuance under the 2017 ESPP without stockholder approval.

Outstanding Equity Awards at Fiscal Year-End

The following table sets forth information concerning outstanding equity awards for each of our named executive officers as of December 31, 2016, all of which are stock options. All stock options granted to our named executive officers were made pursuant to the 2010 Equity Incentive Plan.

Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Options Exercise Price ($)	Option Expiration Date
Peter K. Miller	214,651(1)	—	60,102(2)	4.70	02/11/21
	6,313	3,156(3)	3,156(2)	8.80	03/11/24
	—	—	200,000(4)	47.10	04/07/24
	—	25,000(5)	—	14.85	12/20/26
Ramy A. Mahmoud	103,032(6)	—	34,344(2)	4.70	02/11/21
	20,000	10,000(3)	10,000(2)	8.80	03/11/24
	—	—	100,000(4)	47.10	04/07/24
Thomas E. Gibbs	—	50,000(5)	—	14.85	12/20/2026
	—	—	100,000(7)	47.10	12/20/2026

(1) In 2014, Mr. Miller transferred for no consideration a portion of this option covering 105,000 shares to a trust the beneficiaries of which are Mr. Miller and his spouse.

(2) These options were granted on February 11, 2011 and March 11, 2014 and 50% of these options vested in January 2017 upon the FDA's acceptance of the NDA for XHANCE. The remaining options vested upon FDA approval for XHANCE for the treatment of nasal polyps.

(3) These options were granted on March 11, 2014 and will vest on each of the first four anniversaries of the vesting starting date (March 10, 2014).

(4) These options were granted on April 7, 2014 and will vest 25% on each of the first four anniversaries of the vesting start date (April 7, 2014). Vested options under this grant are exercisable only immediately prior to, and contingent upon, the consummation of a "change of control," as defined in the 2010 Equity Incentive Plan, or upon or after the consummation of an initial public offering.

(5) These options were granted on December 20, 2016 and will vest 25% on the first anniversary of the vesting start date (September 1, 2016 for Mr. Miller and September 15, 2016 for Mr. Gibbs), and 2.0833% (approximately 1/48th of such shares), for each subsequent full calendar month that the executive remains employed with us or one of our affiliates, with the vesting date occurring on the first day following such subsequent full calendar month.

(6) In 2014, Dr. Mahmoud transferred for no consideration a portion of this option covering 34,344 shares to a trust the beneficiary of which is Dr. Mahmoud's spouse.

(7) These options were granted on December 20, 2016 and will vest 25% of the shares subject to the option on each of the first four anniversaries of the vesting start date (September 15, 2016). Vested options under this grant are exercisable only immediately prior to, and contingent upon, the consummation of a "change of control," as defined in the 2010 Equity Incentive Plan, or upon or after the consummation of an initial public offering.

Retirement Benefits

401(k) Plan

We currently maintain a defined contribution 401(k) retirement plan for all of our employees in the United States, including our named executive officers, or the 401(k) Plan. Employees are eligible to participate in the 401(k) Plan on the first month following their date of hire. Under the terms of the 401(k) Plan, participating employees may defer up to 100% of their pre-tax salary provided such deferral is not in excess of the applicable statutory limits. Following the completion of this offering, we expect to match employee contributions to the 401(k) Plan. Employee contributions to the 401(k) Plan vest immediately.

Potential Payments Upon a Termination or Change in Control

Peter K. Miller

Pursuant to his employment agreement with us, if Mr. Miller's employment is terminated by us without "cause," as defined in the agreement, then Mr. Miller will be entitled to receive the following termination benefits, subject to his execution and non-revocation of a release of claims:

- 12 months of base salary continuation; and
- 12 months of continued participation in our standard group medical, vision and dental plans on substantially the same terms as such benefits are provided to employees during such period.

Mr. Miller's employment agreement contains restrictive covenants relating to non-disclosure of confidential information, non-disparagement, assignment of inventions, non-competition that runs for 12 months following his termination of employment for any reason, non-solicitation of customers and suppliers covenants that run for 12 months following his termination of employment for any reason, and non-solicitation of employees that runs for 24 months following his termination of employment for any reason.

The stock options granted to Mr. Miller on February 11, 2011 and March 11, 2014, which are set forth above in the "*Outstanding Equity Awards at Fiscal Year End* " table, may be subject to accelerated vesting upon a change in control, subject to his continued employment on the date of the change in control. The time-based options will become fully vested upon a change in control. The performance-based options may be subject to accelerated vesting based on the achievement of accelerated vesting targets that are based on certain cumulative cash proceeds received.

The stock options granted to Mr. Miller on April 7, 2014 from our Success Option Pool, which are set forth above in the "*Outstanding Equity Awards at Fiscal Year End* " table, will become fully vested upon a change in control, subject to his continued employment on the date of the change in control.

The stock options granted to Mr. Miller on December 20, 2016, which are set forth in the above "*Outstanding Equity Awards at Fiscal Year End* " table, will vest 25% immediately prior to a change in control that occurs prior to the first anniversary of the vesting start date of the options (September 1, 2016), subject to his continued employment on the date of such change in control. The remaining options will vest 2.0833% (approximately 1/48th of such shares) for each subsequent full calendar month that he remains employed by us or our affiliates, with the vesting date occurring on the first day following such subsequent full calendar month.

Ramy A. Mahmoud

Pursuant to his letter agreement with us, if Dr. Mahmoud's employment is terminated by us without "cause," as defined in the agreement, then Dr. Mahmoud will be entitled to receive the following termination benefits, subject to his execution and non-revocation of a release of claims:

- six months of base salary continuation; and
- six months of continued participation in our standard group medical, vision and dental plans on substantially the same terms as such benefits are provided to employees during such period.

Dr. Mahmoud's letter agreement contains restrictive covenants relating to non-disclosure of confidential information, non-disparagement, assignment of inventions, non-competition that runs for six months following his termination of employment for any reason, and non-solicitation of employees, customers and suppliers that run for six months following his termination of employment for any reason.

The stock options granted to Dr. Mahmoud on February 11, 2011 and March 11, 2014, which are set forth above in the "*Outstanding Equity Awards at Fiscal Year End* " table, may be subject to accelerated vesting upon a change in control, subject to his continued employment on the date of the change in control. The time-based options will become fully vested upon a change in control. The performance-based options may be subject to accelerated vesting based on the achievement of accelerated vesting targets that are based on certain cumulative cash proceeds received.

The stock options granted to Dr. Mahmoud on April 7, 2014 from our Success Option Pool, which are set forth above in the "*Outstanding Equity Awards at Fiscal Year End* " table, will become fully vested upon a change in control, subject to his continued employment on the date of the change in control.

Thomas E. Gibbs

Pursuant to his letter agreement with us, if Mr. Gibbs' employment is terminated by us without "cause," as defined in the agreement, then Mr. Gibbs will be entitled to receive the following termination benefits, subject to his execution and non-revocation of a release of claims:

- three months of base salary continuation; and
- three months of continued participation in our standard group medical, vision and dental plans on substantially the same terms as such benefits are provided to employees during such period.

Mr. Gibbs' letter agreement contains restrictive covenants relating to non-disclosure of confidential information, non-disparagement, assignment of inventions, non-competition that runs for six months following his termination of employment for any reason, and non-solicitation of employees, customers and suppliers that run for six months following his termination of employment for any reason.

The stock options granted to Mr. Gibbs on December 20, 2016 from our Success Option Pool, which are set forth above in the "*Outstanding Equity Awards at Fiscal Year End* " table, will become fully vested upon a change in control, subject to his continued employment on the date of the change in control.

The stock options granted to Mr. Gibbs on December 20, 2016 from our General Bonus Pool, which are set forth in the above "*Outstanding Equity Awards at Fiscal Year End* " table, will vest 25% immediately prior to a change in control that occurs prior to the first anniversary of the vesting start date of the options (September 15, 2016), subject to his continued employment on the date of such change in control. The remaining options will vest 2.0833% (approximately 1/48th of such shares) for each subsequent full calendar month that he remains employed by us or our affiliates, with the vesting date occurring on the first day following such subsequent full calendar month.

Compensation of Non-Management Directors

For the year ended December 31, 2016, other than as set forth below, we did not pay any compensation, make any equity awards or non-equity awards to, or pay any other compensation to any of the non-management members of our board of directors. Peter K. Miller, our Chief Executive Officer, did not receive any compensation for his service as a member of our board of directors during 2016. Mr. Miller's compensation for service as an employee for fiscal year 2016 is presented above in the "Summary Compensation Table." With the exception of Mr. Pickering, whom we paid a retainer in connection with his service as chairman of our board of directors, we did not maintain any standard fee arrangements for the non-management members of our board of directors for their service as a director in 2016.

Name	Fees Earned or Paid in Cash ($)	Option Awards ($)(1)	All Other Compensation ($)	Total ($)
Larry G. Pickering	50,000	123,295(2)	—	173,295
Klaas de Boer	—	—	—	—
Per Gisle Djupesland(3)	—	98,636(4)	175,359	273,995
William F. Doyle	—	—	—	—
Patrick O'Neill	—	—	—	—
Sriram Venkataraman	—	—	—	—
Joshua A. Tamaroff	—	—	—	—

(1) The amounts in this column represent the full grant date fair value for awards granted during 2016, all of which were in the form of stock options. The grant date fair value of the options was computed in accordance with ASC Topic 718, *Compensation — Stock Compensation*. These amounts do not necessarily correspond to the actual value that may be realized by the director in connection with his option awards. The assumptions made in valuing the option awards reported in this column are described in Note 11 to our consolidated financial statements included in this prospectus.

(2) These options vest 25% on the first anniversary of the vesting start date (September 1, 2016) and 2.0833% (approximately $^{1}/_{48}{}^{th}$ of such shares) for each subsequent full calendar month that Mr. Pickering provides service to us or one of our affiliates, with the vesting date occurring on the first day following such subsequent full calendar month.

(3) Reflects compensation earned by Dr. Djupesland in connection with his service as the Chief Scientific Officer of OptiNose AS. The amount reflected was paid in Norwegian Kroner and converted into U.S. dollars at the average exchange rate for the period of 8.3936kr per U.S. dollar.

(4) These options vest 25% on the first anniversary of the vesting start date (September 1, 2016) and 2.0833% (approximately $^{1}/_{48}{}^{th}$ of such shares) for each subsequent full calendar month that Dr. Djupesland provides service to us or one of our affiliates, with the vesting date occurring on the first day following such subsequent full calendar month.

As of December 31, 2016, Mr. Pickering and Drs. O'Neill and Djupesland owned options to purchase 27,500, 15,000 and 10,000 shares of our common stock, respectively. None of our other non-management directors held any options to purchase shares of our common stock as of December 31, 2016.

Our board of directors intends to adopt a non-management director compensation policy following the closing of this offering.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following includes a summary of transactions since January 1, 2014 to which we have been a party in which the amount involved exceeded or will exceed $120,000, and in which any of our directors, executive officers or beneficial owners of more than 5% of our capital stock, or any members of their immediate family, had or will have a direct or indirect material interest, other than compensation arrangements that are described under "Executive and Director Compensation."

Convertible Preferred Stock Financings

In July 2014, we issued an aggregate of 1,419,781 shares of our Series C-1 Preferred Stock at a purchase price of $21.13 per share, for aggregate consideration of $30.0 million. In July 2015, we issued an additional 236,629 shares of our Series C-1 Preferred Stock at a purchase price of $21.13 per share, for aggregate consideration of $5.0 million.

In March 2017, we issued an aggregate of 1,065,451 shares of our Series D Preferred Stock at a purchase price of $32.85 per share, for aggregate consideration of $35.0 million. In April 2017 and May 2017, we issued an additional 52,127 shares of our Series D Preferred Stock at a purchase price of $32.85 per share, for aggregate consideration of $1.7 million.

In connection with the Series C-1 Preferred Stock financing in July 2015, we reimbursed Avista Capital Partners, or Avista, for $6,600 in legal fees incurred by them and an aggregate of $149,999 in funding fees incurred by Avista and the other Series C-1 Preferred Stock investors. In connection with the Series D Preferred Stock financing, we reimbursed Avista and Fidelity Investments, or Fidelity, for $36,360 and $45,076, respectively, in legal fees incurred by them.

The table below sets forth the number of shares of our Series C-1 and Series D Preferred Stock purchased by our executive officers, directors, holders of more than 5% of our capital stock and their affiliated entities or immediate family members. Each share of our convertible preferred stock in the table below will automatically convert into one share of our common stock upon the closing of this offering.

Participants[1]	Shares of Series C-1 Preferred Stock	Series C-1 Convertible Preferred Stock Aggregate Purchase ($)	Shares of Series D Preferred Stock	Series D Convertible Preferred Stock Aggregate Purchase ($)
Avista Capital Partners[2]	1,161,662	24,545,918	304,416	10,000,066
Entrepreneurs Fund LP[3]	113,842	2,405,481	45,662	1,499,997
Ikos Invest AS[4]	104,635	2,210,938	—	—
Larry G. Pickering[5]	20,715	437,708	—	—
Patrick O'Neill[6]	1,456	30,765	393	12,910
TKWD Ventures LLC[7]	190,440	4,023,997	—	—
Peter K. Miller[8]	16,564	349,997	—	—
Ramy A. Mahmoud[9]	16,564	349,997	—	—
Fidelity Investments	—	—	761,035	25,000,000
William F. Doyle[7]	1,142	24,130	334	10,972

(1) Additional details regarding these stockholders and their equity holdings are provided in "Principal Stockholders."

(2) Mr. Venkataraman and Mr. Tamaroff, members of our board of directors, are affiliated with Avista Capital Partners II, LP, Avista Capital Partners (Offshore) II, LP and Avista Capital Partners (Offshore) II-A, LP.

(3) Mr. de Boer, a member of our board of directors, is affiliated with Entrepreneurs Fund LP.

(4) Dr. Djupesland, a member of our board of directors, is affiliated with Ikos Invest AS.

(5) Mr. Pickering is the chairman of our board of directors.

(6) Dr. O'Neill is a member of our board of directors.

(7) Mr. Doyle, a member of our board of directors, is affiliated with TKWD Ventures LLC.

(8) Mr. Miller is our Chief Executive Officer and a member of our board of directors.

(9) Dr. Mahmoud is our President and Chief Operating Officer.

2015 Convertible Note Financing

In September 2015, we sold and issued an aggregate principal amount of $15.0 million of senior secured convertible notes, or the 2015 Notes. Under the terms of the 2015 Notes, we were required to pay an aggregate of $450,000 in front-end fees and $450,000 plus interest in back-end fees.

In connection with the Series D Preferred Stock financing described above, we entered into a Note Conversion Agreement with the holders of the 2015 Notes pursuant to which all of the 2015 Notes, including all principal, accrued interest and back-end fee amounts, were converted into an aggregate of 687,474 shares of our Series C-2 Preferred Stock at a conversion price of $28.40 per share.

The table below sets forth the amount of 2015 Notes purchased by our executive officers, directors, holders of more than 5% of our capital stock and their affiliated entities or immediate family members, as well as the number of shares of Series C-2 Preferred Stock acquired by each such entity upon conversion of the 2015 Notes. Each share of our Series C-2 Preferred Stock in the table below will automatically convert into one share of our common stock upon the closing of this offering.

Participants[1]	Principal Amount of Notes Purchased ($)	Front-end Fees Paid by Us ($)	Back-end Fees ($)	Convertible Note Value at Conversion ($)	Shares of Series C-2 Preferred Stock Issued Upon Conversion
Ikos Invest AS[2]	75,000	2,250	2,844	97,635	3,437
Entrepreneurs Fund General Partner Limited[3]	1,511,075	45,332	57,295	1,967,123	69,256
Peter K. Miller[4]	66,042	1,981	2,504	85,973	3,026
Ramy A. Mahmoud[5]	35,175	1,055	1,334	45,791	1,612
Avista Capital Partners[6]	10,902,112	327,063	413,371	14,192,413	499,670
Larry G. Pickering[7]	219,639	6,589	8,328	285,927	10,066
TKWD Ventures LLC[8]	2,019,167	60,575	76,560	2,628,559	92,543
William F. Doyle[8]	10,340	310	392	13,461	473

(1) Additional details regarding these stockholders and their equity holdings are provided in "Principal Stockholders."

(2) Dr. Djupesland, a member of our board of directors, is affiliated with Ikos Invest AS.

(3) Mr. de Boer, a member of our board of directors, is affiliated with Entrepreneurs Fund LP.

(4) Mr. Miller is our Chief Executive Officer and a member of our board of directors.

(5) Dr. Mahmoud is our President and Chief Operating Officer.

(6) Mr. Venkataraman and Mr. Tamaroff, members of our board of directors, are affiliated with Avista Capital Partners II, LP, Avista Capital Partners (Offshore) II, LP and Avista Capital Partners (Offshore) II-A, LP.

(7) Mr. Pickering is a member of our board of directors.

(8) Mr. Doyle, a member of our board of directors, is affiliated with TKWD Ventures LLC.

Second Amended and Restated Registration Rights Agreement

In connection with our Series D Preferred Stock financing in March 2017, we entered into the Second Amended and Restated Registration Rights Agreement, or the Registration Rights Agreement, with the holders of our Series B-1 Preferred Stock, Series B-2 Preferred Stock, Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock. We expect to amend the Registration Rights Agreement in connection with this offering. For a description of the registration rights that we expect to be in place upon the closing of this offering, see "Description of Capital Stock — Registration Rights."

Second Amended and Restated Shareholders' Agreement

In connection with our Series D Preferred Stock financing in March 2017, we entered into the Second Amended and Restated Shareholders' Agreement, or the Shareholders' Agreement, with certain of our stockholders, including Avista, TWKD, Fidelity, Entrepreneurs' Fund, and certain members of our senior management team and board of directors. We expect to amend the Shareholders' Agreement in connection with this offering, which amendment will provide for, among other things:

- Avista's right to nominate (i) two directors to our board of directors for so long as it owns 17.5% or more of our then-outstanding shares of common stock, and (ii) one director to our board of directors for so long as it owns less than 17.5% but 7.5% or more of our then-outstanding shares of common stock;
- TKWD's right to nominate one director to our board of directors so long as it owns 7.5% or more of our then-outstanding shares of common stock;
- restrictions on our ability to appoint or dismiss our chief executive officer without obtaining the prior written consent of Avista, until the earlier of (i) such time that Avista holds less than 20% of the outstanding shares of our common stock and (ii) , 201 ;
- restrictions on our ability to license, acquire or divest any assets for consideration having a fair market value in excess of $100 million without obtaining the prior written consent of Avista, until the earlier of (i) such time that Avista holds less than 20% of the outstanding shares of our common stock and (ii) , 201 ;
- restrictions on the ability of management and certain of our stockholders to sell securities until the earlier of (i) , 201 and (ii) the completion of an underwritten secondary offering of our common stock in which Avista participates;
- contractual lock-up obligations for certain of our stockholders upon the filing of a registration statement in connection with an underwritten offering;
- confidentiality obligations with respect to our proprietary information and the proprietary information of our stockholders; and
- a requirement that we maintain directors' and officers' insurance on behalf of all of our and our subsidiaries' current and former officers and directors.

Employment of Certain Related Persons

John Pickering, the son of Larry Pickering, the chairman of our board of directors, is an employee of our company. During the years ended December 31, 2014, 2015 and 2016, we paid John Pickering $243,531, $247,045 and $389,097, respectively, in cash compensation, consisting of his base salary and, with respect to 2016, an annual bonus. John Pickering's current annual base salary for 2017 is $267,180. He also received a bonus in 2017 of $61,932. On March 11, 2014, our board of directors granted John Pickering a stock option to purchase 3,500 shares of our common stock. The grant date fair value of this stock option was $24,420.

Helena Djupesland, the spouse of Per Gisle Djupesland, a member of the OptiNose AS board of directors, is the Co-Chief Executive Officer and a director of OptiNose AS, our Norwegian subsidiary. During the years ended December 31, 2014, 2015 and 2016, we paid Ms. Djupesland total cash compensation of $258,245, $201,552 and $193,736, respectively. Ms. Djupesland's current annual base salary for 2017 is $195,186. She also received a bonus in 2017 of $17,427. The amounts reflected were based in Norwegian kroner and converted into U.S. dollars at an average exchange rate of 6.2969kr, 8.0681kr, and 8.3936kr per U.S. dollar for the years ended December 31, 2014, 2015 and 2016, respectively, and an average exchange rate of 8.3312kr per U.S. dollar for the period from January 1, 2017 to September 12, 2017.

Each of John Pickering and Helena Djupesland participate in our general welfare and benefit plans.

Indemnification Agreements

We have entered, or intend to enter, into indemnification agreements with our directors and executive officers, in addition to the indemnification provided for in our fourth amended and restated certificate of incorporation and our amended and restated bylaws, each of which will become effective immediately following the closing of this offering. These indemnification agreements provide our directors and executive officers with contractual rights to indemnification and, in some cases, expense advancement in any action or proceeding arising out of their services as one of our directors or executive officers or as a director or executive officer of any other company or enterprise to which the person provides services at our request. For more information regarding these indemnification agreements, see "Management — Limitations on Liability and Indemnification Matters."

Policies and Procedures for Transactions with Related Persons

Effective upon the closing of this offering, our board of directors has adopted a related party transactions policy that sets forth our procedures for the identification, review, consideration and approval or ratification of related party transactions. Pursuant to this policy, we will review all transactions with a dollar value in excess of $120,000 involving us in which any of our executive officers, directors, director nominees or holders of more than 5% of our capital stock, or any affiliate or member of their immediate family, is a participant.

Under the policy, if a transaction has been identified as a related party transaction, including any transaction that was not a related party transaction when originally consummated or any transaction that was not initially identified as a related party transaction prior to consummation, members of management or our directors must present information regarding the proposed related party transaction to our audit committee or, where review by our audit committee would be inappropriate due to a conflict of interest, to another independent body of our board of directors, for review, consideration and approval or ratification. The presentation must include a description of, among other things, all of the parties, the direct and indirect interests of the related persons, the purpose of the transaction, the material facts, the benefits of the transaction to us and whether any alternative transactions are available, an assessment of whether the terms are comparable to the terms available from unrelated third parties and management's recommendation. In considering whether to approve any proposed related party transactions, our audit committee or another independent body of our board of directors will take into account the relevant available facts and circumstances, including:

- the materiality and character of the related person's interest in the transaction;
- the commercial reasonableness of the terms of the transaction;
- the benefit and perceived benefit, or lack thereof, to us;
- the opportunity costs of alternate transactions; and
- the actual or apparent conflicts of interest of the related person.

All of the transactions described in this section were entered into prior to the adoption of this policy. Although we have not had a written policy for the review and approval of transactions with related persons, our board of directors has historically reviewed and approved any transaction where a director or officer had a financial interest, including the transactions described above. Prior to approving such a transaction, the material facts as to a director's or officer's relationship or interest in the agreement or transaction were disclosed to our board of directors. Our board of directors took this information into account when evaluating the transaction and in determining whether such transaction was fair to us and in the best interest of all our stockholders.

PRINCIPAL STOCKHOLDERS

The following table sets forth certain information relating to the beneficial ownership of our common stock as of September 15, 2017 by:

- each person, or group of affiliated persons, known by us to beneficially own more than 5% of our outstanding shares of common stock;
- each of our directors;
- each of our named executive officers; and
- all of our current directors and executive officers as a group.

Beneficial ownership is determined in accordance with the rules of the SEC and generally includes voting or investment power with respect to securities. Unless otherwise indicated below, to our knowledge, the persons and entities named in the table have sole voting and sole investment power with respect to all shares beneficially owned, subject to community property laws where applicable. Common stock subject to options or warrants that are currently exercisable or exercisable within 60 days of September 15, 2017, are deemed to be outstanding and to be beneficially owned by the person holding the options or warrants for the purpose of computing the percentage ownership of that person, but are not treated as outstanding for the purpose of computing the percentage ownership of any other person.

Percentage ownership of our common stock "Before Offering" in the table below is based on 10,089,106 shares of common stock, which includes (a) 1,408,540 shares of common stock issued and outstanding as of September 15, 2017 and (b) 8,680,566 shares of our common stock issuable upon the automatic conversion of all outstanding shares of our convertible preferred stock upon the closing of this offering. Percentage ownership of our common stock "After Offering" in the table gives effect to the issuance of shares of our common stock in this offering, and assumes no exercise of the underwriters' option to purchase additional shares.

Name and address of beneficial owner[1]	Number of shares beneficially owned	Percentage of shares beneficially owned	
		Before offering	After offering
5% or greater stockholders:			
Avista Capital Partners II, LP[2]	5,937,887	58.85%	
TKWD Ventures LLC[3]	1,558,748	14.70	
Entrepreneurs Fund LP[4]	1,017,354	10.02	
Entities affiliated with Ikos Invest AS[5]	888,292	8.76	
Entities affiliated with Fidelity Management & Research Company[6]	761,035	7.54	
Directors and executive officers:			
Peter K. Miller[7]	326,175	3.14	
Ramy A. Mahmoud[8]	190,552	1.86	
Thomas E. Gibbs[9]	12,500	*	
Keith A. Goldan	—	—	
Michael F. Marino	—	—	
Larry G. Pickering[10]	131,619	1.30	
Klaas de Boer	—	—	
Per Gisle Djupesland[5]	888,292	8.76	
William F. Doyle[3][11]	1,568,912	14.79	
Patrick O'Neill[12]	22,663	*	
Sriram Venkataraman[2]	5,937,887	58.85	
Joshua A. Tamaroff[13]	—	—	
All executive officers and directors as a group (12 persons)[14]	9,078,600	81.26	

* Represents beneficial ownership of less than one percent of our outstanding common stock.

(1) Unless otherwise indicated, the address of each of the individuals and entities named below is c/o OptiNose, Inc., 1020 Stony Hill Road, Suite 300, Yardley, PA 19067.

(2) Consists of (a) 34,825 shares of common stock held by Avista Capital Partners II, LP, (b) 11,437 shares of common stock held by Avista Capital Partners (Offshore) II, LP, (c) 2,775 shares of common stock held by Avista Capital Partners (Offshore) II-A, LP, (d) 4,182,127 shares of common stock issuable upon conversion of convertible preferred stock held by Avista Capital Partners II, LP, (e) 1,373,354 shares of common stock issuable upon conversion of convertible preferred stock held by Avista Capital Partners (Offshore) II, LP, and (f) 333,369 shares of common stock issuable upon conversion of convertible preferred stock held by Avista Capital Partners (Offshore) II-A, LP. Avista Capital Partners II GP, LLC ultimately exercises voting and investment power over the shares of held by Avista Capital Partners II, L.P., Avista Capital Partners (Offshore) II, L.P., and Avista Capital Partners (Offshore) II-A, L.P. Voting and disposition decisions at Avista Capital Partners II GP, LLC with respect to such shares are made by an investment committee, the members of which are Thompson Dean, Steven Webster, David Burgstahler and Sriram Venkataraman, a member of our board of directors. Each of the members of the investment committee disclaims beneficial ownership of these securities except to the extent of any pecuniary interest therein. The address for each of these individuals and entities is 65 East 55th Street, 18th Floor, New York, NY 10022.

(3) Includes (a) 1,043,368 shares of common stock issuable upon conversion of convertible preferred stock, and (b) 515,380 shares of common stock subject to warrants that are exercisable within 60 days of September 15, 2017. WFD Ventures LLC is the general partner of TKWD Ventures LLC and may be deemed to have sole voting and investment power over the shares held by TKWD Ventures LLC. William F. Doyle, a member of our board of directors, is a managing member of WFD Ventures LLC, and in his capacity as such, may be deemed to exercise shared voting and investment power over the shares held by TKWD Ventures LLC. Mr. Doyle disclaims beneficial ownership in such securities, except to the extent of his pecuniary interest therein. The address for each of these individuals and entities is c/o WFD Ventures LLC, 152 West 57th Street, 10th Floor, New York, NY 10019.

(4) Consists of (a) 364,590 shares of common stock, (b) 584,220 shares of common stock issuable upon conversion of convertible preferred stock, and (c) 68,544 shares of common stock subject to warrants that are exercisable within 60 days of September 15, 2017. Entrepreneurs Fund General Partner Limited, or EF GP, is the general partner of Entrepreneurs

Fund LP, or EF LP, and may be deemed to have sole voting and investment power over the shares held by EF LP. Colin Dow and Paul Bradshaw are managing directors of EF GP, and in theirs capacity as such, may be deemed to exercise shared voting and investment power over the shares held by EF LP. Mr. de Boer, a member of our board of directors is the Managing Partner of Entrepreneurs Fund Management LLP, an affiliate of EF GP and EF LP, through common control. Neither Mr. de Boer nor Entrepreneurs Fund Management LLP has voting or investment power over EF GP or EF LP. The address for each of these individuals and entities is 2nd Floor, Windward House, La Route de la Liberation, Se. Heller, Jersey JE2 3BQ, The Channel Islands.

(5) Consists of (a) 712,000 shares of common stock held by Ikos Subsidiary AS, (b) 118,355 shares of common stock issuable upon conversion of convertible preferred stock held by Ikos Subsidiary AS (c) 3,437 shares of common stock issuable upon conversion of convertible preferred stock held by Ikos Invest AS, (d) 20,000 shares of our common stock subject to warrants held by Ikos Subsidiary AS that are exercisable within 60 days of September 15, 2017, and (e) 34,500 shares of our common stock subject to options held by Ikos Invest AS that are exercisable within 60 days of September 15, 2017. Per Gisle Djupesland, a member of our board of directors, and Helena Djupesland are directors of Ikos Invest AS and its wholly-owned subsidiary Ikos Subsidiary AS, and as such they have shared voting and investment power over the shares held by Ikos Invest AS and Ikos Subsidiary AS. The address for each of Dr. and Ms. Djupesland and these entities is Lybekkveien 5C, 0772, Oslo, Norway.

(6) Consists of (a) 343,700 shares of common stock issuable upon conversion of convertible preferred stock held by Fidelity Mt. Vernon Street Trust: Fidelity Growth Company Fund, (b) 174,300 shares of common stock issuable upon conversion of convertible preferred stock held by Fidelity Growth Company Commingled Pool, (c) 132,335 shares of common stock issuable upon conversion of convertible preferred stock held by Fidelity Securities Fund: Fidelity OTC Portfolio, (d) 104,500 shares of common stock issuable upon conversion of convertible preferred stock held by Fidelity Mt. Vernon Street Trust: Fidelity Series Growth Company Fund, and (e) 6,200 shares of common stock issuable upon conversion of convertible preferred stock held by Fidelity OTC Commingled Pool. These accounts are managed by direct or indirect subsidiaries of FMR LLC. Abigail P. Johnson is a Director, the Vice Chairman, the Chief Executive Officer and the President of FMR LLC. Members of the Johnson family, including Abigail P. Johnson, are the predominant owners, directly or through trusts, of Series B voting common shares of FMR LLC, representing 49% of the voting power of FMR LLC. The Johnson family group and all other Series B shareholders have entered into a shareholders' voting agreement under which all Series B voting common shares will be voted in accordance with the majority vote of Series B voting common shares. Accordingly, through their ownership of voting common shares and the execution of the shareholders' voting agreement, members of the Johnson family may be deemed, under the Investment Company Act of 1940, to form a controlling group with respect to FMR LLC. Neither FMR LLC nor Abigail P. Johnson has the sole power to vote or direct the voting of the shares owned directly by the various investment companies registered under the Investment Company Act, or the Fidelity Funds advised by Fidelity Management & Research Company, or FMR Co, a wholly owned subsidiary of FMR LLC, which power resides with the Fidelity Funds' Board of Trustees. Fidelity Management & Research Company carries out the voting of the shares under written guidelines established by the Fidelity Funds' Board of Trustees. The address for Fidelity Securities Fund: Fidelity OTC Portfolio is The Northern Trust Company, Attn: Trade Securities Processing, C-1N, 801 South Canal Street, Chicago, IL 60607. The address for Fidelity Growth Company Commingled Pool is Mag & Co., c/o Brown Brothers Harriman & Co., Attn: Corporate Actions /Vault, 140 Broadway, New York, NY. The address for Fidelity Mt. Vernon Street Trust: Fidelity Growth Company Fund is BNY Mellon, Attn: Stacey Wolfe, 525 William Penn Place, Rm. 0400, Pittsburgh, PA 152590. The address for Fidelity Mt. Vernon Street Trust: Fidelity Series Growth Company Fund is State Street Bank & Trust, PO Box 5756, Boston, Massachusetts 02206. The address for Fidelity OTC Commingled Pool is Mag & Co., c/o Brown Brothers Harriman & Co., Attn: Corporate Actions /Vault, 140 Broadway, New York, NY 10005.

(7) Consists of (a) 34,125 shares of common stock issuable upon conversion of convertible preferred stock, (b) 187,050 shares of common stock subject to options that are exercisable within 60 days of September 15, 2017, and (c) 105,000 shares of common stock subject to options held by the Deed of Trust of Peter K. Miller, dated October 13, 2014 that are exercisable within 60 days of September 15, 2017.

(8) Consists of (a) 18,176 shares of common stock issuable upon conversion of convertible preferred stock, (b) 138,032 shares of common stock subject to options that are exercisable within 60 days of September 15, 2017, and (c) 34,344 shares of common stock subject to options held by The Ramy Mahmoud 2014 Trust for Cynthia Mahmoud that are exercisable within 60 days of September 15, 2017.

(9) Consists of 12,500 shares of common stock subject to options that are exercisable within 60 days of September 15, 2017.

(10) Consists of (a) 113,494 shares of common stock issuable upon conversion of convertible preferred stock, and (b) 18,125 shares of common stock subject to options that are exercisable within 60 days of September 15, 2017.

(11) Includes (a) 6,512 shares of common stock issuable upon conversion of convertible preferred stock, and (b) 3,652 shares of common stock subject to warrants that are exercisable within 60 days of September 15, 2017.

(12) Consists of (a) 7,663 shares of common stock issuable upon conversion of convertible preferred stock, and (b) 15,000 shares of common stock subject to options that are exercisable within 60 days of September 15, 2017.

(13) Excludes shares held by Avista Capital Partners II, LP, Avista Capital Partners (Offshore) II, LP and Avista Capital Partners (Offshore) II-A, LP. The address for Mr. Tamaroff is c/o Avista Capital Partners, 65 E. 55th Street, 18th Floor, New York, NY 10022.

(14) Consists of (a) 761,037 shares of common stock, (b) 7,233,980 shares of common stock issuable upon conversion of convertible preferred stock, (c) 539,032 shares of common stock subject to warrants that are exercisable within 60 days of September 15, 2017, and (d) 544,551 shares of common stock subject to options that are exercisable within 60 days of September 15, 2017.

DESCRIPTION OF CAPITAL STOCK

The following is a summary of the rights of our common and preferred stock and some of the provisions of our fourth amended and restated certificate of incorporation and amended and restated bylaws, each of which will become effective immediately following the closing of this offering, and of the Delaware General Corporation Law. This summary is not complete. For more detailed information, please see our fourth amended and restated certificate of incorporation and amended and restated bylaws, which are filed as exhibits to the registration statement of which this prospectus is a part, as well as the relevant provisions of the Delaware General Corporation Law.

General

Immediately following the closing of this offering and the filing of our fourth amended and restated certificate of incorporation, our authorized capital stock will consist of shares, of which will be designated as common stock with a par value of $0.001 per share and of which will be designated as preferred stock with a par value of $0.001 per share.

Common Stock

Outstanding Shares

As of June 30, 2017, there would have been 10,089,106 shares of common stock outstanding, held by 36 stockholders of record, after giving effect to the automatic conversion of all preferred stock outstanding as of June 30, 2017.

Voting Rights

Each holder of our common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders, other than election of directors, which shall be determined by a plurality of the votes cast by the stockholders entitled to vote on the election of such director. In addition, the affirmative vote of the holders of at least % of the voting power of all of the then outstanding voting stock will be required to take certain actions, including amending certain provisions of our fourth amended and restated certificate of incorporation, such as the provisions relating to director liability, amending our bylaws or changing the Court of Chancery of the State of Delaware and United States District Court for the District of Delaware and any appellate courts thereof from being the sole and exclusive forums for certain actions brought by our stockholders against us or our directors, officers or employees.

Under our fourth amended and restated certificate of incorporation and amended and restated bylaws, our stockholders will not have cumulative voting rights. Because of this, the holders of a majority of the shares of common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they should so choose.

Dividends

Subject to the preferences that may be applicable to any outstanding preferred stock, holders of our common stock shall be entitled to receive ratably any dividends that may be declared by our board of directors out of funds legally available for that purpose.

Liquidation

In the event of our liquidation, dissolution or winding up, holders of our common stock shall be entitled to share ratably in all assets remaining after payment of liabilities and the liquidation preference of any outstanding preferred stock.

No Preemptive or Similar Rights

Our common stock shall not be entitled to preemptive rights and is not subject to conversion, redemption or sinking fund provisions. The rights, preferences and privileges of the holders of common stock are subject

to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate in the future.

Convertible Preferred Stock

Upon the closing of this offering, all outstanding shares of our preferred stock will be automatically converted into an aggregate of 8,680,566 shares of common stock. Under our fourth amended and restated certificate of incorporation that will be in effect immediately following the closing of this offering, our board of directors will have the authority, subject to limitations prescribed by Delaware law, to issue up to shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each series and to fix the designation, powers, preferences and rights of the shares of each series and any of its qualifications, limitations and restrictions. Our board of directors also can increase or decrease the number of shares of any series, but not below the number of shares of that series then outstanding.

Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the common stock. The purpose of authorizing our board of directors to issue preferred stock and determine its rights and preferences is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of our company and may adversely affect the market price of our common stock and the voting and other rights of the holders of common stock. It is not possible to state the actual effect of the issuance of any shares of preferred stock on the rights of holders of common stock until the board of directors determines the specific rights attached to that preferred stock. We have no current plan to issue any shares of preferred stock.

Stock Options

As of June 30, 2017, we had outstanding options to purchase 1,522,901 shares of our common stock at a weighted-average exercise price of $18.64 per share, pursuant to the 2010 Equity Incentive Plan. For additional information regarding the terms of this plan, see "Executive and Director Compensation — Equity Incentive Plan Compensation."

Warrants

In June 2010, we issued common stock warrants to certain of our stockholders, including Ikos Invest AS, Entrepreneurs Fund LP and TKWD Ventures LLC, which were immediately exercisable for an aggregate of 654,624 shares of our common stock at an exercise price of $23.56 per share. These warrants remain outstanding as of June 30, 2017. The holders of these warrants may exercise the warrants, at their election, in cash, by cashless exercise or by a combination of these two methods. The shares underlying the warrants are considered registrable securities for purposes of the Registration Rights Agreement. Each warrant expires on November 1, 2020 if not earlier exercised.

Registration Rights

Pursuant to the Registration Rights Agreement, certain holders of shares of our common stock have registration rights and certain holders of our warrants and shares of our preferred stock have registration rights with respect to the shares of common stock issuable upon exercise or conversion, as applicable, as further described below. After registration of these shares of common stock pursuant to these rights, these shares will become freely tradable without restriction under the Securities Act. The registration rights will terminate with respect to each stockholder on the date on which such stockholder can sell all of its registrable shares without limitation during a three-month period without registration pursuant to Rule 144 of the Securities Act or another similar exemption under the Securities Act. See "Shares Eligible for Future Sale — Rule 144."

Demand Registration Rights

Pursuant to the Registration Rights Agreement, at any time beginning 180 days following the closing of this offering, certain holders of registrable shares who are party to the Registration Rights Agreement have the right to demand that we file a Form S-1 registration statement for the registration of their shares of common stock, including shares of common stock to be issued in connection with the automatic conversion of all outstanding shares of our preferred stock upon the closing of this offering. These registration rights are subject to specified conditions and limitations, including a minimum expected aggregate gross proceeds of $20.0 million, the number of registration demands and the right of a managing underwriter to limit the number of shares included in any such registration under specified circumstances. Upon such a request, we are required to effect the registration as expeditiously as possible. An aggregate of shares of common stock will be entitled to these demand registration rights upon the closing of this offering. We are not obligated to file a registration statement pursuant to this provision on more than one occasion, unless such registration statement was not declared effective by the SEC.

Registration on Form S-3

In addition, subject to specified limitations set forth in the Registration Rights Agreement, at any time after we become eligible to file a registration statement on Form S-3, holders of at least 20% of the registrable securities then outstanding may request that we register their registrable securities on a registration statement on Form S-3 for purposes of a public offering if the total amount of registrable securities registered have an aggregate offering price of at least $20.0 million. We are not obligated to file a registration statement pursuant to this provision on more than two occasions in any 12-month period. An aggregate of shares of common stock will be entitled to these demand registration rights upon the closing of this offering.

Piggyback Registration Rights

At any time after the closing of this offering, if we propose to file a registration statement to register any of our securities under the Securities Act, either for our own account or for the account of any of our stockholders, other than pursuant to the demand registration rights described above, the holders of our registrable securities are entitled to notice of registration and, subject to specified exceptions, we will be required upon the holders' request to use our best efforts to include their then-held registrable securities in the registration statement. These piggyback registration rights are subject to specified conditions and limitations, including the right of the underwriters to limit the number of shares included in any such registration under specified circumstances. In addition, in connection with an underwritten secondary offering requested by Avista, certain members of our management will have the right to participate on a pro rata basis. An aggregate of shares of common stock will be entitled to these piggyback registration rights. These piggyback registration rights do not apply to this offering.

Other Provisions

We will pay all registration expenses, other than underwriting discounts and commissions and transfer taxes, if any, attributable to the sale of the registrable securities related to any registration effected pursuant to the Registration Rights Agreement. Unless a registration has been revoked by the holders, we are also required to pay the fees and expenses of one counsel for the holders of registrable securities designated by the holder of a majority of registrable securities being registered, as well as the fees and expenses of counsel for Avista. The Registration Rights Agreement contains customary cross-indemnification provisions pursuant to which we are obligated to indemnify the selling stockholders in the event of material misstatements or omissions in the registration statement attributable to us, and they are obligated to indemnify us for material misstatements or omissions in the registration statement attributable to them.

Delaware Anti-Takeover Law and Provisions of Our Certificate of Incorporation and Bylaws

Delaware Anti-Takeover Law

Our fourth amended and restated certificate of incorporation that will be effective immediately following the closing of this offering provides that we will not be subject to Section 203 of the Delaware General Corporation Law, or Section 203, until such time that Avista and TKWD cease to beneficially own 10% of more of our outstanding shares of common stock. Our fourth amended and restated certificate of incorporation does, however, contain a provision that generally mirrors Section 203, except that it excludes Avista and its affiliates from the definition of "interested stockholder." At such time that Avista and TKWD collectively cease to own 10% or more of our capital stock, we will be governed by the provisions of Section 203. Section 203 generally prohibits a public Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- the interested stockholder owned at least 85% of the voting stock of the corporation outstanding upon consummation of the transaction, excluding for purposes of determining the number of shares outstanding (1) shares owned by persons who are directors and also officers and (2) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or subsequent to the consummation of the transaction, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least $66^{2}/_{3}\%$ of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;
- subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder;
- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder; and
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

Certificate of Incorporation and Bylaws

Provisions of our fourth amended and restated certificate of incorporation and our amended and restated bylaws, each of which will be in effect immediately following the closing of this offering, may delay or discourage transactions involving an actual or potential change of control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares, or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these

provisions could adversely affect the price of our common stock. Among other things, our fourth amended and restated certificate of incorporation and our amended and restated bylaws will:

- permit our board of directors to issue up to million shares of preferred stock, with any rights, preferences and privileges as it may designate, which issuance could result in the loss of voting control by other stockholders;
- provide that our board of directors will be classified into three classes with staggered, three-year terms and that, subject to the rights of Avista and TKWD to remove their respective director nominees with or without cause, directors may only be removed for cause by the affirmative vote of the holders of at least a majority of the voting power of outstanding shares of our capital stock;
- subject to any director nomination rights afforded Avista and TKWD, provide that all vacancies on our board of directors, including as a result of newly created directorships, may, except as otherwise required by law, be filled only by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- following the date that Avista and TKWD cease to hold a majority of the outstanding shares of our common stock, require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and not be taken by written consent;
- provide that, with the exception of director nominees submitted by Avista and TKWD under our Shareholders' Agreement, stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide advance notice in writing, and also specify requirements as to the form and content of a stockholder's notice;
- require that the amendment of certain provisions of our certificate of incorporation relating to anti-takeover measures may only be approved by a vote of $66^{2}/_{3}\%$ of our outstanding common stock;
- not provide for cumulative voting rights, thereby allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election; and
- provide that special meetings of our stockholders may be called only by the chairman or vice chairman of our board of directors, our chief executive officer, a majority of our board of directors or, for so long as Avista and TKWD hold a controlling ownership interest of our common stock, by the holders of a majority of our outstanding shares of common stock.

The combination of these provisions will make it more difficult for our existing stockholders to replace our board of directors as well as for another party to obtain control of us by replacing our board of directors. Since our board of directors has the power to retain and discharge our officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change our control.

These provisions are intended to enhance the likelihood of continued stability in the composition of our board of directors and its policies and to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to reduce our vulnerability to hostile takeovers and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of delaying changes in our control or management. As a consequence, these provisions may also inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts. We believe that the benefits of these provisions, including increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure our company, outweigh the disadvantages of discouraging takeover proposals, because negotiation of takeover proposals could result in an improvement of their terms.

Choice of Forum

Our fourth amended and restated certificate of incorporation will provide that the Court of Chancery of the State of Delaware, or the United States District Court for the District of Delaware and any appellate courts thereof where subject matter jurisdiction is vested exclusively in the federal courts of the United States of America, will be the exclusive forum for:

- any derivative action or proceeding brought on our behalf;
- any action asserting a breach of fiduciary duty;
- any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our fourth amended and restated certificate of incorporation or our amended and restated bylaws; or
- any action asserting a claim against us that is governed by the internal affairs doctrine.

The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that, in connection with any action, a court could find the choice of forum provisions contained in our restated certificate to be inapplicable or unenforceable in such action.

NASDAQ Global Market Listing

We have applied to list our common stock on The NASDAQ Global Market under the symbol " ."

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is . The transfer agent's address is

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our common stock. Future sales of substantial amounts of our common stock in the public market after this offering, or the perception that these sales could occur, could adversely affect prevailing market prices for our common stock. Furthermore, since only a limited number of shares will be available for sale shortly after this offering because of contractual and legal restrictions on resale described below, sales of substantial amounts of common stock in the public market after the restrictions lapse could adversely affect the prevailing market price for our common stock as well as our ability to raise equity capital in the future.

Based on the number of shares of common stock outstanding as of June 30, 2017, upon the closing of this offering, shares of common stock will be outstanding, after giving effect to the automatic conversion of all outstanding shares of our preferred stock into 8,680,566 shares of common stock upon the closing of this offering and the issuance by us of shares of common stock in this offering, but assuming no exercise of the underwriters' option to purchase additional shares. All of the shares sold in this offering will be freely tradable unless purchased by our "affiliates" as that term is defined in Rule 144 under the Securities Act or purchased by existing stockholders and their affiliated entities that are subject to lock-up agreements. The remaining shares of common stock outstanding after this offering will be restricted as a result of securities laws, lock-up agreements or the Shareholders' Agreement. Other than shares subject to trading restrictions under the Shareholders' Agreement, these remaining shares will generally become available for sale in the public market as follows:

- restricted shares will be eligible for immediate sale upon the closing of this offering; and
- restricted shares will be eligible for sale upon expiration of lock-up agreements 180 days after the date of this offering, subject in certain circumstances to the volume, manner of sale and other limitations under Rule 144 and Rule 701.

Rule 144

In general, pursuant to Rule 144 under the Securities Act, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, any person who is not an affiliate of ours at any time during the three months preceding a sale and has held their shares for at least six months, including the holding period of any prior owner other than one of our affiliates, may sell shares without restriction, provided current public information about us is available. In addition, under Rule 144, any person who is not an affiliate of ours at any time during the three months preceding a sale and has held their shares for at least one year, including the holding period of any prior owner other than one of our affiliates, would be entitled to sell an unlimited number of shares immediately following the closing of this offering without regard to whether current public information about us is available.

Beginning 90 days after the effective date of the registration statement of which this prospectus is a part, a person who is an affiliate of ours and who has beneficially owned restricted securities for at least six months, including the holding period of any prior owner other than one of our affiliates, is entitled to sell a number of restricted shares within any three-month period that does not exceed the greater of:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately shares immediately after this offering; or
- the average weekly trading volume of our common stock on The NASDAQ Global Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

Sales of restricted shares under Rule 144 held by our affiliates are also subject to requirements regarding the manner of sale, notice and the availability of current public information about us. Rule 144 also provides that affiliates relying on Rule 144 to sell shares of our common stock that are not restricted shares must nonetheless comply with the same restrictions applicable to restricted shares, other than the holding period requirement.

Rule 701

Pursuant to Rule 701 under the Securities Act, shares of our common stock acquired upon the exercise of currently outstanding options or pursuant to other rights granted under our stock incentive plans may be resold by:

- persons other than affiliates, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, subject only to the manner-of-sale provisions of Rule 144; and
- our affiliates, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, subject to the manner-of-sale and volume limitations, current public information and filing requirements of Rule 144, in each case, without compliance with the six-month holding period requirement of Rule 144.

As of June 30, 2017, options to purchase a total of 1,522,901 shares of common stock were outstanding. Of the total number of shares of our common stock issuable under these options, substantially all are subject to contractual lock-up agreements with us or the underwriters described below under "Underwriting" and will become eligible for sale in accordance with Rule 701 at the expiration of those agreements.

Lock-up Agreements

We, along with our directors, executive officers and substantially all of our other securityholders, have agreed with the underwriters that for a period of 180 days after the date of this prospectus, or the restricted period, subject to specified exceptions, we and they will not sell, offer to sell, contract to sell or lend, effect any short sale or establish or increase any put equivalent position or liquidate or decrease any call equivalent position, pledge, hypothecate, grant any security interest in or in any other way transfer or dispose of, directly or indirectly, any shares of common stock or any securities convertible into or exercisable or exchangeable for shares of common stock, or enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the common stock. Upon expiration of the restricted period, certain of our stockholders will have the right to require us to register their shares under the Securities Act. See "— Registration Rights" below and "Description of Capital Stock — Registration Rights."

After this offering, certain of our employees, including our executive officers and/or directors, may enter into written trading plans that are intended to comply with Rule 10b5-1 under the Securities Exchange Act of 1934, as amended, or the Exchange Act. Sales under these trading plans would not be permitted until the expiration of the lock-up agreements described above.

Registration Rights

Upon the closing of this offering, the holders of shares of common stock or their transferees will be entitled to various rights with respect to registration of these shares under the Securities Act, subject to the lock-up arrangement described above. Registration of these shares under the Securities Act would result in these shares becoming fully tradable without restriction under the Securities Act, except for shares purchased by affiliates, immediately upon the effectiveness of the registration. Any sales of securities by these stockholders could have a material adverse effect on the trading price of our common stock. See "Description of Capital Stock — Registration Rights" for additional information.

Equity Incentive Plans

We intend to file with the SEC a registration statement on Form S-8 under the Securities Act covering the shares of common stock reserved for issuance under the 2010 Plan and 2017 ESPP. The registration statement is expected to be filed and become effective as soon as practicable after the closing of this offering. Accordingly, shares registered under such registration statement will be available for sale in the open market following its effective date, subject to vesting restrictions, Rule 144 volume limitations for affiliates and the lock-up agreements described above, if applicable.

MATERIAL UNITED STATES FEDERAL INCOME TAX CONSIDERATIONS FOR NON-U.S. HOLDERS OF COMMON STOCK

The following is a general discussion of the material U.S. federal income tax considerations applicable to non-U.S. holders (as defined herein) with respect to their ownership and disposition of shares of our common stock issued pursuant to this offering. All prospective non-U.S. holders of our common stock should consult their tax advisors with respect to the U.S. federal, state, local and non-U.S. tax consequences of the purchase, ownership and disposition of our common stock. In general, a non-U.S. holder means a beneficial owner of our common stock (other than a partnership or an entity or arrangement treated as a partnership for U.S. federal income tax purposes) that is not, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation, or an entity treated as a corporation for U.S. federal income tax purposes, created or organized in the United States or under the laws of the United States or of any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust if (1) a U.S. court can exercise primary supervision over the trust's administration and one or more U.S. persons have the authority to control all of the trust's substantial decisions or (2) the trust has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a U.S. person.

This discussion is based on current provisions of the U.S. Internal Revenue Code of 1986, as amended, or the Code, existing U.S. Treasury Regulations promulgated thereunder, published administrative pronouncements and rulings of the U.S. Internal Revenue Service, or the IRS, and judicial decisions, all as in effect as of the date of this prospectus. These authorities are subject to change and to differing interpretation, possibly with retroactive effect. Any change or differing interpretation could alter the tax consequences to non-U.S. holders described in this prospectus.

We assume in this discussion that a non-U.S. holder holds shares of our common stock as a capital asset within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all aspects of U.S. federal income taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances, nor does it address any alternative minimum, Medicare contribution, estate or gift tax consequences, or any aspects of U.S. state, local or non-U.S. taxes. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as holders that own, or are deemed to own, more than 5% of our capital stock (except to the extent specifically set forth below), corporations that accumulate earnings to avoid U.S. federal income tax, tax-exempt organizations, banks, financial institutions, insurance companies, brokers, dealers or traders in securities, commodities or currencies, tax-qualified retirement plans, holders who hold or receive our common stock pursuant to the exercise of employee stock options or otherwise as compensation, holders holding our common stock as part of a hedge, straddle or other risk reduction strategy, conversion transaction or other integrated investment, holders deemed to sell our common stock under the constructive sale provisions of the Code, controlled foreign corporations, passive foreign investment companies and certain former U.S. citizens or long-term residents.

In addition, this discussion does not address the tax treatment of partnerships (or entities or arrangements that are treated as partnerships for U.S. federal income tax purposes) or persons that hold their common stock through partnerships. If a partnership, including any entity or arrangement treated as a partnership for U.S. federal income tax purposes, holds shares of our common stock, the U.S. federal income tax treatment of a partner in such partnership will generally depend upon the status of the partner and the activities of

the partnership. Such partners and partnerships should consult their tax advisors regarding the tax consequences of the purchase, ownership and disposition of our common stock.

There can be no assurance that a court or the IRS will not challenge one or more of the tax consequences described herein, and we have not obtained, nor do we intend to obtain, a ruling with respect to the U.S. federal income tax consequences to a non-U.S. holder of the purchase, ownership or disposition of our common stock.

Distributions on Our Common Stock

Distributions, if any, on our common stock generally will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such holder's adjusted tax basis in the common stock. Any remaining excess will be treated as capital gain from the sale or exchange of such common stock, subject to the tax treatment described below in "Gain on Sale, Exchange or Other Disposition of Our Common Stock." Any such distribution will also be subject to the discussion below under the heading "Foreign Accounts."

Dividends paid to a non-U.S. holder will generally be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States, are generally exempt from the 30% withholding tax if the non-U.S. holder satisfies applicable certification and disclosure requirements. However, such U.S. effectively connected income, net of specified deductions and credits, is taxed at the same graduated U.S. federal income tax rates applicable to U.S. persons (as defined in the Code). Any U.S. effectively connected income received by a non-U.S. holder that is a corporation may also, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

To claim a reduction or exemption from withholding, a non-U.S. holder of our common stock generally will be required to provide (a) a properly executed IRS Form W-8BEN or W-8BEN-E (or successor form) and satisfy applicable certification and other requirements to claim the benefit of an applicable income tax treaty between the United States and such holder's country of residence, or (b) a properly executed IRS Form W-8ECI stating that dividends are not subject to withholding because they are effectively connected with such non-U.S. holder's conduct of a trade or business within the United States. Non-U.S. holders are urged to consult their tax advisors regarding their entitlement to benefits under a relevant income tax treaty.

A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS.

Gain on Sale, Exchange or Other Disposition of Our Common Stock

Subject to the discussion below regarding backup withholding and foreign accounts, in general, a non-U.S. holder will not be subject to any U.S. federal income tax on any gain realized upon such holder's sale, exchange or other disposition of shares of our common stock unless:

- the gain is effectively connected with a U.S. trade or business of the non-U.S. holder and, if an applicable income tax treaty so provides, is attributable to a permanent establishment or a fixed base maintained in the United States by such non-U.S. holder, in which case the non-U.S. holder generally will be taxed at the graduated U.S. federal income tax rates applicable to U.S. persons (as defined in the Code) and, if the non-U.S. holder is a foreign corporation, the branch profits tax described above in "Distributions on Our Common Stock" also may apply;

- the non-U.S. holder is a nonresident alien individual who is present in the United States for 183 days or more in the taxable year of the disposition and certain other conditions are met, in which case the non-U.S. holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty) on the net gain derived from the disposition, which may be offset by U.S. source capital losses of the non-U.S. holder, if any (even though the individual is not considered a resident of the United States); or

- our common stock constitutes a U.S. real property interest because we are, or have been, at any time during the five-year period preceding such disposition (or the non-U.S. holder's holding period, if shorter) a "U.S. real property holding corporation." Generally, a corporation is a U.S. real property holding corporation only if the fair market value of its U.S. real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we do not believe that we are, or have been, a U.S. real property holding corporation, or that we are likely to become one in the future. Even if we are or become a U.S. real property holding corporation, provided that our common stock is regularly traded, as defined by applicable U.S. Treasury Regulations, on an established securities market, our common stock will be treated as a U.S. real property interest only with respect to a non-U.S. holder that holds more than 5% of our outstanding common stock, directly or indirectly, actually or constructively, during the shorter of the 5-year period ending on the date of the disposition or the period that the non-U.S. holder held our common stock. If we are a U.S. real property holding corporation and either our common stock is not regularly traded on an established securities market or a non-U.S. holder holds, or is treated as holding, more than 5% of our outstanding common stock, directly or indirectly, during the applicable testing period, such non-U.S. holder will generally be taxed on any gain in the same manner as gain that is effectively connected with the conduct of a U.S. trade or business, except that the branch profits tax generally will not apply. If we are a U.S. real property holding corporation and our common stock is not regularly traded on an established securities market, a non-U.S. holder's proceeds received on the disposition of shares will also generally be subject to withholding at a rate of 15%. Prospective investors are encouraged to consult their own tax advisors regarding the possible consequences to them if we are, or were to become, a U.S. real property holding corporation. No assurance can be provided that our common stock is or will in the future be regularly traded on an established securities market for purposes of the rules described above.

Backup Withholding and Information Reporting

We must report annually to the IRS and to each non-U.S. holder the gross amount of the dividends on our common stock paid to such holder and the tax withheld, if any, with respect to such dividends. Non-U.S. holders will have to comply with specific certification procedures to establish that the holder is not a U.S. person (as defined in the Code) in order to avoid backup withholding at the applicable rate with respect to dividends on our common stock. A non-U.S. holder generally will not be subject to U.S. backup withholding with respect to payments of dividends on our common stock if it certifies its non-U.S. status by providing a valid IRS Form W-8BEN or W-8BEN-E (or successor form) or W-8ECI, or otherwise establishes an

exemption; provided we do not have actual knowledge or reason to know such non-U.S. holder is a U.S. person, as defined in the Code. Dividends paid to non-U.S. holders subject to the U.S. withholding tax, as described above in "Distributions on Our Common Stock," generally will be exempt from U.S. backup withholding.

Information reporting and backup withholding will generally apply to the proceeds of a disposition of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or foreign, unless the holder certifies its status as a non-U.S. holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker. Non-U.S. holders should consult their tax advisors regarding the application of the information reporting and backup withholding rules to them.

Copies of information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is incorporated under the provisions of a specific treaty or agreement.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder may be allowed as a credit against the non-U.S. holder's U.S. federal income tax liability, if any, and may entitle such holder to a refund, provided that the required information is timely furnished to the IRS.

Foreign Accounts

The Foreign Account Tax Compliance Act, or FATCA, generally imposes a U.S. federal withholding tax of 30% on dividends and the gross proceeds of a disposition of our common stock paid to a "foreign financial institution" (as specifically defined for this purpose), unless such institution enters into an agreement with the U.S. government to, among other things, withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding U.S. account holders of such institution (which includes certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners) or otherwise qualifies for an exemption from these rules. A U.S. federal withholding tax of 30% also applies to dividends and will apply to the gross proceeds of a disposition of our common stock paid to a non-financial foreign entity (as defined in the Code), unless such entity provides the withholding agent with either a certification that it does not have any substantial direct or indirect U.S. owners or provides information regarding substantial direct and indirect U.S. owners of the entity, or otherwise qualifies for an exemption from these rules. The withholding provisions described above currently apply to dividends paid on our common stock and will generally apply with respect to gross proceeds of a sale or other disposition of our common stock on or after January 1, 2019.

If withholding is imposed under FATCA on a payment related to our common stock, a beneficial owner that is not a foreign financial institution and that otherwise would not be subject to withholding (or that otherwise would be entitled to a reduced rate of withholding) generally may obtain a refund from the IRS by filing a U.S. federal income tax return (which may entail significant administrative burden). An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this paragraph.

EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS TAX ADVISOR REGARDING THE PARTICULAR U.S. FEDERAL, STATE AND LOCAL AND NON-U.S. TAX CONSEQUENCES OF PURCHASING, OWNING AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAWS.

UNDERWRITING

Subject to the terms and conditions set forth in the underwriting agreement, dated , 2017, among us and Jefferies LLC and Piper Jaffray & Co., as the representatives of the underwriters named below and the joint book-running managers of this offering, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the respective number of shares of common stock shown opposite its name below:

UNDERWRITER	NUMBER OF SHARES
Jefferies LLC	
Piper Jaffray & Co.	
BMO Capital Markets Corp.	
RBC Capital Markets, LLC	
Total	

The underwriting agreement provides that the obligations of the several underwriters are subject to certain conditions precedent such as the receipt by the underwriters of officers' certificates and legal opinions and approval of certain legal matters by their counsel. The underwriting agreement provides that the underwriters will purchase all of the shares of common stock if any of them are purchased. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the non-defaulting underwriters may be increased or the underwriting agreement may be terminated. We have agreed to indemnify the underwriters and certain of their controlling persons against certain liabilities, including liabilities under the Securities Act, and to contribute to payments that the underwriters may be required to make in respect of those liabilities.

The underwriters have advised us that, following the closing of this offering, they currently intend to make a market in the common stock as permitted by applicable laws and regulations. However, the underwriters are not obligated to do so, and the underwriters may discontinue any market-making activities at any time without notice in their sole discretion. Accordingly, no assurance can be given as to the liquidity of the trading market for the common stock, that you will be able to sell any of the common stock held by you at a particular time or that the prices that you receive when you sell will be favorable.

The underwriters are offering the shares of common stock subject to their acceptance of the shares of common stock from us and subject to prior sale. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commission and Expenses

The underwriters have advised us that they propose to offer the shares of common stock to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers, which may include the underwriters, at that price less a concession not in excess of $ per share of common stock. The underwriters may allow, and certain dealers may reallow, a discount from the concession not in excess of $ per share of common stock to certain brokers and dealers. After the offering, the initial public offering price, concession and reallowance to dealers may be reduced by the representatives. No such reduction will change the amount of proceeds to be received by us as set forth on the cover page of this prospectus.

The following table shows the public offering price, the underwriting discounts and commissions that we are to pay the underwriters and the proceeds, before expenses, to us in connection with this offering. Such

amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	PER SHARE		TOTAL	
	WITHOUT OPTION TO PURCHASE ADDITIONAL SHARES	WITH OPTION TO PURCHASE ADDITIONAL SHARES	WITHOUT OPTION TO PURCHASE ADDITIONAL SHARES	WITH OPTION TO PURCHASE ADDITIONAL SHARES
Public offering price	$	$	$	$
Underwriting discounts and commissions paid by us	$	$	$	$
Proceeds to us, before expenses	$	$	$	$

We estimate expenses payable by us in connection with this offering, other than the underwriting discounts and commissions referred to above, will be approximately $. We have also agreed to reimburse the underwriters for certain expenses, including an amount not to exceed $ in connection with the clearance of this offering with the Financial Industry Regulatory Authority, or FINRA, as set forth in the underwriting agreement. In accordance with FINRA Rule 5110, the reimbursement of these fees is deemed underwriting compensation for this offering.

Determination of Offering Price

Prior to this offering, there has not been a public market for our common stock. Consequently, the initial public offering price for our common stock will be determined by negotiations between us and the representatives. Among the factors to be considered in these negotiations will be prevailing market conditions, our financial information, market valuations of other companies that we and the underwriters believe to be comparable to us, estimates of our business potential, the present state of our development and other factors deemed relevant.

We offer no assurances that the initial public offering price will correspond to the price at which the common stock will trade in the public market subsequent to the offering or that an active trading market for the common stock will develop and continue after the offering.

Listing

We have applied to have our common stock approved for listing on The NASDAQ Global Market under the trading symbol " ."

Stamp Taxes

If you purchase shares of common stock offered in this prospectus, you may be required to pay stamp taxes and other charges under the laws and practices of the country of purchase, in addition to the offering price listed on the cover page of this prospectus.

Option to Purchase Additional Shares

We have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase, from time to time, in whole or in part, up to an aggregate of shares from us at the public offering price set forth on the cover page of this prospectus, less underwriting discounts and commissions. If the underwriters exercise this option, each underwriter will be obligated, subject to specified conditions, to purchase a number of additional shares proportionate to that underwriter's initial purchase commitment as indicated in the table above. This option may be exercised only if the underwriters sell more shares than the total number set forth on the cover page of this prospectus.

No Sales of Similar Securities

We, our officers, directors and holders of all or substantially all our outstanding capital stock and other securities have agreed, subject to specified exceptions, not to directly or indirectly:

- sell, offer, contract or grant any option to sell (including any short sale), pledge, transfer, establish an open "put equivalent position" within the meaning of Rule 16a-l(h) under the Exchange Act,
- otherwise dispose of any shares of common stock, options or warrants to acquire shares of common stock, or securities exchangeable or exercisable for or convertible into shares of common stock currently or hereafter owned either of record or beneficially,
- enter into any swap, hedge or similar arrangement or agreement that transfers, in whole or in part, the economic risk of ownership of shares of our common stock, or of options or warrants to shares of our common stock, or securities or rights exchangeable or exercisable for or convertible into shares of our common stock,
- make any demand for, or exercise any right with respect to, the registration under the Securities Act of the offer and sale of any shares of our common stock, or of options or warrants to shares of our common stock, or securities or rights exchangeable or exercisable for or convertible into shares of our common stock, or cause to be filed a registration statement, prospectus or prospectus supplement (or an amendment or supplement thereto) with respect to any such registration, or
- publicly announce an intention to do any of the foregoing for a period of 180 days after the date of this prospectus without the prior written consent of Jefferies LLC and Piper Jaffray & Co.

This restriction terminates after the close of trading of the common stock on and including the 180th day after the date of this prospectus.

Jefferies LLC and Piper Jaffray & Co. may, in their discretion and at any time or from time to time before the termination of the 180-day period, release all or any portion of the securities subject to lock-up agreements. There are no existing agreements between the underwriters and any of our stockholders who will execute a lock-up agreement, providing consent to the sale of shares prior to the expiration of the lock-up period.

The foregoing restrictions shall not apply to issuances of common stock or grants of stock options, restricted stock or other incentive compensation pursuant to the terms of certain stock plans or arrangements described herein.

Stabilization

The underwriters have advised us that, pursuant to Regulation M under the Exchange Act, certain persons participating in the offering may engage in short sale transactions, stabilizing transactions, syndicate covering transactions or the imposition of penalty bids in connection with this offering. These activities may have the effect of stabilizing or maintaining the market price of the common stock at a level above that which might otherwise prevail in the open market. Establishing short sales positions may involve either "covered" short sales or "naked" short sales.

"Covered" short sales are sales made in an amount not greater than the underwriters' option to purchase additional shares of our common stock in this offering. The underwriters may close out any covered short position by either exercising their option to purchase additional shares or purchasing shares of our common stock in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option to purchase additional shares.

"Naked" short sales are sales in excess of the option to purchase additional shares. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of

the shares of our common stock in the open market after pricing that could adversely affect investors who purchase in this offering.

A stabilizing bid is a bid for the purchase of shares of common stock on behalf of the underwriters for the purpose of fixing or maintaining the price of the common stock. A syndicate covering transaction is the bid for or the purchase of shares of common stock on behalf of the underwriters to reduce a short position incurred by the underwriters in connection with the offering. Similar to other purchase transactions, the underwriter's purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. A penalty bid is an arrangement permitting the underwriters to reclaim the selling concession otherwise accruing to a syndicate member in connection with the offering if the common stock originally sold by such syndicate member are purchased in a syndicate covering transaction and therefore have not been effectively placed by such syndicate member.

Neither we nor any of the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. The underwriters are not obligated to engage in these activities and, if commenced, any of the activities may be discontinued at any time.

Electronic Distribution

A prospectus in electronic format may be made available by e-mail or on the web sites or through online services maintained by one or more of the underwriters or their affiliates. In those cases, prospective investors may view offering terms online and may be allowed to place orders online. The underwriters may agree with us to allocate a specific number of shares of common stock for sale to online brokerage account holders. Any such allocation for online distributions will be made by the underwriters on the same basis as other allocations. Other than the prospectus in electronic format, the information on the underwriters' web sites and any information contained in any other web site maintained by any of the underwriters is not part of this prospectus, has not been approved and/or endorsed by us or the underwriters and should not be relied upon by investors.

Other Activities and Relationships

The underwriters and certain of their affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. The underwriters and certain of their affiliates have, from time to time, performed, and may in the future perform, various commercial and investment banking and financial advisory services for us and our affiliates, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the underwriters and certain of their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve securities and/or instruments issued by us and our affiliates. If the underwriters or their respective affiliates have a lending relationship with us, they routinely hedge their credit exposure to us consistent with their customary risk management policies. The underwriters and their respective affiliates may hedge such exposure by entering into transactions which consist of either the purchase of credit default swaps or the creation of short positions in our securities or the securities of our affiliates, including potentially the common stock offered hereby. Any such short positions could adversely affect future trading prices of the common stock offered hereby. The underwriters and certain of their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Selling Restrictions

Australia

This prospectus is not a disclosure document for the purposes of Australia's Corporations Act 2001 (Cth) of Australia, or Corporations Act, has not been lodged with the Australian Securities & Investments Commission and is only directed to the categories of exempt persons set out below. Accordingly, if you receive this prospectus in Australia:

You confirm and warrant that you are either:

- a "sophisticated investor" under section 708(8)(a) or (b) of the Corporations Act;
- a "sophisticated investor" under section 708(8)(c) or (d) of the Corporations Act and that you have provided an accountant's certificate to the company which complies with the requirements of section 708(8)(c)(i) or (ii) of the Corporations Act and related regulations before the offer has been made; or
- a "professional investor" within the meaning of section 708(11)(a) or (b) of the Corporations Act.

To the extent that you are unable to confirm or warrant that you are an exempt sophisticated investor or professional investor under the Corporations Act any offer made to you under this prospectus is void and incapable of acceptance.

You warrant and agree that you will not offer any of the shares issued to you pursuant to this prospectus for resale in Australia within 12 months of those shares being issued unless any such resale offer is exempt from the requirement to issue a disclosure document under section 708 of the Corporations Act.

Canada

Resale Restrictions

The distribution of shares in Canada is being made only in the provinces of Ontario, Québec, Manitoba, Alberta and British Columbia on a private placement basis exempt from the requirement that we prepare and file a prospectus with the securities regulatory authorities in each province where trades of these securities are made. Any resale of the shares in Canada must be made under applicable securities laws which may vary depending on the relevant jurisdiction, and which may require resales to be made under available statutory exemptions or under a discretionary exemption granted by the applicable Canadian securities regulatory authority. Purchasers are advised to seek legal advice prior to any resale of the securities.

Representations of Canadian Purchasers

By purchasing shares in Canada and accepting delivery of a purchase confirmation, a purchaser is representing to us and the dealer from whom the purchase confirmation is received that:

- the purchaser is entitled under applicable provincial securities laws to purchase the shares without the benefit of a prospectus qualified under those securities laws as it is an "accredited investor" as defined under National Instrument 45-106—Prospectus Exemptions,
- the purchaser is a "permitted client" as defined in National Instrument 31-103—Registration Requirements, Exemptions and Ongoing Registrant Obligations,
- where required by law, the purchaser is purchasing as principal and not as agent, and
- the purchaser has reviewed the text above under Resale Restrictions.

Conflicts of Interest

Canadian purchasers are hereby notified that certain of the underwriters are relying on the exemption set out in section 3A.3 or 3A.4, if applicable, of National Instrument 33-105—Underwriting Conflicts from having to provide certain conflict of interest disclosure in this document.

Statutory Rights of Action

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if the offering memorandum (including any amendment thereto) such as this document contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser of these securities in Canada should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Enforcement of Legal Rights

All of our directors and officers as well as the experts named herein may be located outside of Canada and, as a result, it may not be possible for Canadian purchasers to effect service of process within Canada upon us or those persons. All or a substantial portion of our assets and the assets of those persons may be located outside of Canada and, as a result, it may not be possible to satisfy a judgment against us or those persons in Canada or to enforce a judgment obtained in Canadian courts against us or those persons outside of Canada.

Taxation and Eligibility for Investment

Canadian purchasers of shares should consult their own legal and tax advisors with respect to the tax consequences of an investment in the shares in their particular circumstances and about the eligibility of the shares for investment by the purchaser under relevant Canadian legislation.

European Economic Area

In relation to each member state of the European Economic Area which has implemented the Prospectus Directive, each referred to herein as a Relevant Member State, with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State, referred to herein as the Relevant Implementation Date, no offer of any securities which are the subject of the offering contemplated by this prospectus has been or will be made to the public in that Relevant Member State other than any offer where a prospectus has been or will be published in relation to such securities that has been approved by the competent authority in that Relevant Member State or, where appropriate, approved in another Relevant Member State and notified to the relevant competent authority in that Relevant Member State in accordance with the Prospectus Directive, except that with effect from and including the Relevant Implementation Date, an offer of such securities may be made to the public in that Relevant Member State:

- to any legal entity which is a "qualified investor" as defined in the Prospectus Directive;
- to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the representatives of the underwriters for any such offer; or
- in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of securities shall require us or any of the underwriters to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer to the public" in relation to any securities in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the securities to be offered so as to enable an investor to decide to purchase or subscribe the securities, as the same may be varied in that Relevant Member State by any measure implementing the Prospectus Directive in that Relevant Member State and the expression "Prospectus Directive" means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State and the expression "2010 PD Amending Directive" means Directive 2010/73/EU.

Hong Kong

No securities have been offered or sold, and no securities may be offered or sold, in Hong Kong, by means of any document, other than to persons whose ordinary business is to buy or sell shares or debentures, whether as principal or agent; or to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or in other circumstances which do not result in the document being a "prospectus" as defined in the Companies Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap.32) of Hong Kong. No document, invitation or advertisement relating to the securities has been issued or may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted under the securities laws of Hong Kong) other than with respect to securities which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance.

This prospectus has not been registered with the Registrar of Companies in Hong Kong. Accordingly, this prospectus may not be issued, circulated or distributed in Hong Kong, and the securities may not be offered for subscription to members of the public in Hong Kong. Each person acquiring the securities will be required, and is deemed by the acquisition of the securities, to confirm that he is aware of the restriction on offers of the securities described in this prospectus and the relevant offering documents and that he is not acquiring, and has not been offered any securities in circumstances that contravene any such restrictions.

Israel

This document does not constitute a prospectus under the Israeli Securities Law, 5728-1968, and has not been filed with or approved by the Israel Securities Authority. In Israel, this prospectus is being distributed only to, and any offer of the shares of our common stock is directed only at investors listed in the first addendum, or the Addendum, to the Israeli Securities Law, consisting primarily of joint investment in trust funds, provident funds, insurance companies, banks, portfolio managers, investment advisors, members of the Tel Aviv Stock Exchange, underwriters, venture capital funds, entities with equity in excess of NIS 50 million and "qualified individuals," each as defined in the Addendum (as it may be amended from time to time), collectively referred to as qualified investors (in each case, purchasing for their own account or, where permitted under the Addendum, for the accounts of their clients who are investors listed in the Addendum). Qualified investors are required to submit written confirmation that they fall within the scope of the Addendum.

Japan

The offering has not been and will not be registered under the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948 of Japan, as amended), or FIEL, and the Initial Purchaser will not offer or sell any securities, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means, unless otherwise provided herein, any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the FIEL and any other applicable laws, regulations and ministerial guidelines of Japan.

Singapore

This prospectus has not been and will not be lodged or registered with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or the invitation for subscription or purchase of the securities may not be issued, circulated or distributed, nor may the securities be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to the public or any member of the public in Singapore other than (1) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore, or the

SFA, (2) to a relevant person as defined under Section 275(2), or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions, specified in Section 275 of the SFA, or (3) otherwise pursuant to, and in accordance with the conditions of any other applicable provision of the SFA.

Where the securities are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

- a corporation (which is not an accredited investor as defined under Section 4A of the SFA) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

- a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary is an accredited investor,

shares, debentures and units of shares and debentures of that corporation or the beneficiaries' rights and interest in that trust shall not be transferable for six months after that corporation or that trust has acquired the Offer Shares under Section 275 of the SFA except:

- to an institutional investor under Section 274 of the SFA or to a relevant person defined in Section 275(2) of the SFA, or to any person pursuant to an offer that is made on terms that such shares, debentures and units of shares and debentures of that corporation or such rights and interest in that trust are acquired at a consideration of not less than $200,000 (or its equivalent in a foreign currency) for each transaction, whether such amount is to be paid for in cash or by exchange of securities or other assets, and further for corporations, in accordance with the conditions, specified in Section 275 of the SFA;

- where no consideration is given for the transfer; or

- where the transfer is by operation of law.

Switzerland

The securities may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or SIX, or on any other stock exchange or regulated trading facility in Switzerland. This prospectus has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this prospectus nor any other offering or marketing material relating to the securities or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this prospectus nor any other offering or marketing material relating to us, the offering, or the securities have been or will be filed with or approved by any Swiss regulatory authority. In particular, this prospectus will not be filed with, and the offer of securities will not be supervised by, the Swiss Financial Market Supervisory Authority, or FINMA, and the offer of securities has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or CISA. The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of securities.

United Kingdom

This prospectus is only being distributed to, and is only directed at, persons in the United Kingdom that are qualified investors within the meaning of Article 2(1)(e) of the Prospectus Directive that are also (1) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended, referred to herein as the Order, and/or (2) high net worth entities falling within Article 49(2)(a) to (d) of the Order and other persons to whom it may lawfully be communicated. Each such person is referred to herein as a Relevant Person.

This prospectus and its contents are confidential and should not be distributed, published or reproduced (in whole or in part) or disclosed by recipients to any other persons in the United Kingdom. Any person in the United Kingdom that is not a Relevant Person should not act or rely on this document or any of its contents.

LEGAL MATTERS

The validity of the shares of common stock being offered by this prospectus will be passed upon for us by Hogan Lovells US LLP, Philadelphia, Pennsylvania. Certain legal matters relating to this offering will be passed upon for the underwriters by Cooley LLP, New York, New York.

EXPERTS

The consolidated financial statements of OptiNose, Inc. at December 31, 2015 and 2016, and for the years then ended, appearing in this Prospectus and Registration Statement have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon appearing elsewhere herein, and are included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1, including exhibits and schedules, under the Securities Act, with respect to the shares of our common stock being offered by this prospectus. This prospectus, which constitutes part of the registration statement, does not contain all of the information in the registration statement and its exhibits. For further information with respect to us and the common stock offered by this prospectus, we refer you to the registration statement and its exhibits. Statements contained in this prospectus as to the contents of any contract or any other document referred to are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

You can read our SEC filings, including the registration statement, over the Internet at the SEC's website at www.sec.gov. You may also read and copy any document we file with the SEC at its public reference facilities at 100 F Street, NE, Washington, D.C. 20549. You may also obtain copies of these documents at prescribed rates by writing to the Public Reference Section of the SEC at 100 F Street, NE, Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference facilities. You may also request a copy of these filings, at no cost, by writing us at OptiNose, Inc., 1020 Stony Hill Road, Suite 300, Yardley, PA 19067, or by calling (267) 364-3500.

Upon the closing of this offering, we will be subject to the information reporting requirements of the Exchange Act and we will file reports, proxy statements and other information with the SEC. These reports, proxy statements and other information will be available for inspection and copying at the public reference room and web site of the SEC referred to above. We also maintain a website at www.optinose.com, at which, following the closing of this offering, you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. Information contained on or accessible through our website is not a part of this prospectus, and the inclusion of our website address in this prospectus is an inactive textual reference only.

OptiNose, Inc.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of OptiNose, Inc.

We have audited the accompanying consolidated balance sheets of OptiNose, Inc. as of December 31, 2015 and 2016, and the related consolidated statements of operations, comprehensive income (loss), redeemable convertible preferred stock and stockholders' deficit, and cash flows for the years then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company's internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the consolidated financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of OptiNose, Inc. at December 31, 2015 and 2016, and the consolidated results of its operations and its cash flows for the years then ended in conformity with U.S. generally accepted accounting principles.

/s/ Ernst & Young LLP

Philadelphia, Pennsylvania

June 23, 2017, except
for the last sentence of Note 14,
as to which the date is
September 18, 2017

OptiNose, Inc.
Consolidated Balance Sheets
As of December 2015 and 2016
(in thousands, except share and per share data)

	December 31, 2015	December 31, 2016
Assets		
Current assets:		
Cash and cash equivalents	$ 15,198	$ 36,797
Grants and other receivables	448	384
Deposits and other current assets	171	3,494
Total current assets	15,817	40,675
Property and equipment, net	191	323
Deposits and other assets — long-term	1	553
Total assets	$ 16,009	$ 41,551
Liabilities, redeemable convertible preferred stock and stockholders' deficit		
Current liabilities:		
Accounts payable	$ 3,506	$ 3,369
Accrued expenses	3,646	2,541
Deferred other income	41	—
Total current liabilities	7,193	5,910
Convertible notes payable, net	14,480	15,256
Accrued interest	669	3,409
Total liabilities	22,342	24,575
Commitments and contingencies (Note 9)		
Redeemable convertible preferred stock, $0.001 par value:		
Series A, 285,480 shares authorized, issued and outstanding at December 31, 2015 and 2016 (liquidation value of $5,381 at December 31, 2016)	5,381	5,381
Series B-1, 35,680 shares authorized, issued and outstanding at December 31, 2015 and 2016 (liquidation value of $673 at December 31, 2016)	673	673
Series B-2, 782,600 shares authorized, issued and outstanding at December 31, 2015 and 2016 (liquidation value of $14,760 at December 31, 2016)	14,760	14,760
Series C, 4,115,344 shares authorized, issued and outstanding at December 31, 2015 and 2016 (liquidation value of $106,724 at December 31, 2016)	96,168	105,738
Series C-1, 1,656,410 shares authorized, issued and outstanding at December 31, 2015 and 2016 (liquidation value of $41,843 at December 31, 2016)	38,077	41,621
Total redeemable convertible preferred stock	155,059	168,173
Stockholders' deficit:		
Common stock, $0.001 par value; 10,624,486 shares authorized; 1,402,290 and 1,408,540 shares issued and outstanding at December 31, 2015 and 2016, respectively	1	1
Additional paid-in capital	—	—
Accumulated deficit	(161,252)	(151,099)
Accumulated other comprehensive loss	(141)	(99)
Total stockholders' deficit	(161,392)	(151,197)
Total liabilities, redeemable convertible preferred stock and stockholders' deficit	$ 16,009	$ 41,551

See accompanying notes to consolidated financial statements

OptiNose, Inc.
Consolidated Statements of Operations
For the years ended December 31, 2015 and 2016
(in thousands, except share and per share data)

	Years Ended December 31,	
	2015	2016
Licensing revenues	$ 85	$ 47,500
Operating expenses:		
Research and development	22,156	15,311
Selling, general and administrative	6,006	6,869
Total operating expenses	28,162	22,180
(Loss) income from operations	(28,077)	25,320
Other (income) expense:		
Grant and other income	(643)	(727)
Interest income	(28)	(143)
Interest expense	819	3,517
Foreign currency losses	89	60
Net (loss) income	(28,314)	22,613
Deemed dividend	9,992	11,005
Accretion to redemption value	2,069	2,109
Net (loss) income attributable to common stockholders	$ (40,375)	$ 9,499
Net (loss) income per share of common stock,		
basic	$ (28.79)	$ 1.15
diluted	$ (28.79)	$ 0.94
Weighted average common shares outstanding,		
basic	1,402,290	1,403,900
diluted	1,402,290	1,724,513
Pro forma net income per share of common stock,		
basic (unaudited)		$ 2.73
diluted (unaudited)		$ 2.63
Pro forma weighted average common shares outstanding,		
basic (unaudited)		8,279,414
diluted (unaudited)		8,600,027

See accompanying notes to consolidated financial statements

OptiNose, Inc.
Consolidated Statements of Comprehensive Income and Loss
For the years ended December 31, 2015 and 2016
(in thousands)

	Years Ended December 31,	
	2015	2016
Net (loss) income	$ (28,314)	$ 22,613
Other comprehensive (loss) income:		
Foreign currency translation adjustment	(13)	42
Comprehensive (loss) income	$ (28,327)	$ 22,655

See accompanying notes to consolidated financial statements

OptiNose, Inc.
Consolidated Statements of Changes in Redeemable Convertible Preferred Stock and Stockholders' Deficit
For the years ended December 31, 2015 and 2016
(in thousands, except share data)

	Redeemable Convertible Preferred Stock		Stockholders' Deficit					
			Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balance at January 1, 2015	6,638,885	$ 138,160	1,402,290	$ 1	$ —	$ (121,465)	$ (128)	$ (121,592)
Stock compensation expense	—	—	—	—	588	—	—	588
Sale of Series C-1 preferred stock	236,629	4,838	—	—	—	—	—	—
Accretion of Series C & Series C-1 preferred stock to redemption value	—	2,069	—	—	(588)	(1,481)	—	(2,069)
Accretion of Series C & Series C-1 preferred stock in lieu of 8% dividend	—	9,992	—	—	—	(9,992)	—	(9,992)
Foreign currency translation adjustment	—	—	—	—	—	—	(13)	(13)
Net loss	—	—	—	—	—	(28,314)	—	(28,314)
Balance at December 31, 2015	6,875,514	155,059	1,402,290	1	—	(161,252)	(141)	(161,392)
Stock compensation expense	—	—	—	—	599	—	—	599
Exercise of common stock options	—	—	6,250	—	55	—	—	55
Accretion of Series C & Series C-1 preferred stock to redemption value	—	2,109	—	—	(654)	(1,455)	—	(2,109)
Accretion of Series C & Series C-1 preferred stock in lieu of 8% dividend	—	11,005	—	—	—	(11,005)	—	(11,005)
Foreign currency translation adjustment	—	—	—	—	—		42	42
Net income	—	—	—	—	—	22,613	—	22,613
Balance at December 31, 2016	6,875,514	$ 168,173	1,408,540	$ 1	$ —	$ (151,099)	$ (99)	$ (151,197)

See accompanying notes to consolidated financial statements

OptiNose, Inc.
Consolidated Statements of Cash Flows
For the years ended December 31, 2015 and 2016
(in thousands)

	Years Ended December 31,	
	2015	2016
Operating activities:		
Net (loss) income	$ (28,314)	$ 22,613
Adjustments to reconcile net (loss) income to net cash (used in) provided by operating activities:		
Depreciation	75	83
Stock-based compensation	588	599
Amortization of debt discount and issuance costs	195	776
Changes in operating assets and liabilities:		
Grants and other receivables	144	65
Deposits and other assets	1,504	(3,888)
Accounts payable	450	(130)
Accrued expenses	(3,814)	(1,097)
Accrued interest	669	2,740
Deferred other income	(211)	(41)
Cash (used in) provided by operating activities	(28,714)	21,720
Investing activities:		
Purchases of property and equipment	(80)	(215)
Cash used in investing activities	(80)	(215)
Financing activities:		
Proceeds from the sale of Series C-1 preferred stock	5,000	—
Cash paid for issuance costs of Series C-1 preferred stock	(162)	—
Proceeds from the exercise of stock options	—	55
Proceeds from issuance of convertible notes payable, net	14,285	—
Cash provided by financing activities	19,123	55
Effects of exchange rate changes on cash and cash equivalents	(14)	39
Net (decrease) increase in cash and cash equivalents	(9,685)	21,599
Cash and cash equivalents at beginning of year	24,883	15,198
Cash and cash equivalents at end of year	$ 15,198	$ 36,797
Supplemental disclosure of noncash financing activities:		
Deemed dividend	$ 9,992	$ 11,005
Accretion to redemption value	$ 2,069	$ 2,109

See accompanying notes to consolidated financial statements

OptiNose, Inc.

Notes to Consolidated Financial Statements

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

1. Organization and Description of Business

OptiNose, Inc. (the Company) was incorporated in Delaware in May 2010 (inception) and its facilities are located in Yardley, Pennsylvania, Oslo, Norway and Swindon, England. The Company's predecessor entity OptiNose AS was formed under the laws of Norway in September 2000. In 2010, OptiNose AS became a wholly-owned subsidiary of the Company as part of an internal reorganization.

The Company is a specialty pharmaceutical company focused on the development and commercialization of products for patients treated by ear, nose and throat (ENT) and allergy specialists. The Company's lead product candidate, XHANCE, is a therapeutic utilizing our proprietary Breath Powered exhalation delivery system (EDS) that delivers a topically-acting and potent anti-inflammatory corticosteroid for the treatment of chronic rhinosinusitis with and without nasal polyps. The Company's new drug application (NDA) for XHANCE was accepted for filing and review by the U.S. Food and Drug Administration (FDA) in January 2017.

2. Liquidity

Since inception, the Company's operations have focused on organization and staffing, business planning, raising capital, establishing an intellectual property portfolio and conducting pre-clinical studies and clinical trials. The Company has not generated any revenue from product sales. As of December 31, 2016, the Company had cash and cash equivalents of $36,797. In addition, in March 2017 through May 2017, the Company completed the sale of 1,117,578 shares of Series D preferred stock at a per share purchase price of $32.85, resulting in gross proceeds to the Company of $36,712 (Note 14). The Company will need to secure additional funding in the future, from one or more equity or debt financings, collaborations, or other sources, in order to carry out all of the Company's planned development and commercialization activities. If additional funding is not secured when required, the Company may need to delay or curtail its operations until such funding is received. The Company is subject to a number of risks similar to other life sciences companies, including, but not limited to, successful development and commercialization of its drug candidates, raising additional capital, the development of new technological innovations by its competitors, protection of proprietary technology and market acceptance of the Company's products.

3. Basis of Presentation and Summary of Significant Accounting Policies

The accompanying consolidated financial statements have been prepared in conformity with United States (US) generally accepted accounting principles (GAAP). Any reference in these notes to applicable guidance is meant to refer to GAAP as found in the Accounting Standards Codification (ASC) and Accounting Standards Updates (ASU) of the Financial Accounting Standards Board (FASB).

Principles of consolidation

The consolidated financial statements include the accounts of OptiNose, Inc. and its wholly-owned subsidiaries, OptiNose US, Inc., OptiNose AS and OptiNose UK Ltd. All inter-company balances and transactions have been eliminated in consolidation.

Use of estimates

The preparation of the consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and reported amounts

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

3. Basis of Presentation and Summary of Significant Accounting Policies (Continued)

of expenses during the reporting period. Due to the uncertainty of factors surrounding the estimates or judgments used in the preparation of the consolidated financial statements, actual results may materially vary from these estimates. Estimates and assumptions are periodically reviewed and the effects of revisions are reflected in the consolidated financial statements in the period they are determined to be necessary.

Cash and cash equivalents

All highly liquid investments purchased with an original maturity date of three months or less at the date of purchase are considered to be cash equivalents. The Company generally invests its cash in deposits with high credit quality financial institutions. Additionally, the Company performs periodic evaluations of the relative credit standing of these financial institutions.

The Company maintains its cash and cash equivalent balances at foreign and domestic financial institutions. Bank deposits with Norwegian banks are insured up to approximately 2,000 Norwegian krone by the Norwegian Banks' Guaranty Fund. Bank deposits with US banks are insured up to $250 by the Federal Deposits Insurance Corporation. The Company had uninsured cash balances of $14,254 and $35,866 at December 31, 2015 and 2016, respectively.

Fair value of financial instruments

The Company measures certain assets and liabilities at fair value, which is defined as the price that would be received to sell an asset or paid to transfer a liability (the exit price) in an orderly transaction between market participants at the measurement date. The FASB accounting guidance outlines a valuation framework and creates a fair value hierarchy in order to increase the consistency and comparability of fair value measurements and the related disclosures. In determining fair value, the Company uses quoted prices and observable inputs. Observable inputs are inputs that market participants would use in pricing the asset or liability based on market data obtained from independent sources. The fair value hierarchy is broken down into three levels based on the source of the inputs as follows:

- Level 1 — Valuations based on unadjusted quoted prices in active markets for identical assets or liabilities.
- Level 2 — Valuations based on observable inputs and quoted prices in active markets for similar assets and liabilities.
- Level 3 — Valuations based on inputs that are unobservable and models that are significant to the overall fair value measurement.

At December 31, 2015 and 2016, the Company's financial instruments included cash and cash equivalents, grants receivable, accounts payable and accrued expenses. The carrying amounts reported in the Company's financial statements for these instruments approximates their respective fair values because of the short-term nature of these instruments. At December 31, 2015 and 2016, there were no financial assets or liabilities measured at fair value on a recurring basis.

The Company's financial instruments also included convertible debt at December 31, 2015 and 2016 (Note 8).

Property and equipment

Property and equipment is recorded at cost. Significant additions or improvements are capitalized, and expenditures for repairs and maintenance are charged to expense as incurred. Gains and losses on disposal

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

3. Basis of Presentation and Summary of Significant Accounting Policies (Continued)

of assets are included in the consolidated statements of comprehensive loss. Depreciation is calculated on a straight-line basis over the estimated useful lives of the respective assets.

The estimated useful lives of equipment are as follows:

Computer equipment	3 years
Software	3 years
Machinery & production equipment	5 - 10 years
Furniture & fixtures	3 - 5 years
Leasehold improvements	Shorter of lease term or useful life

Long lived assets

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to future net cash flows expected to be generated. Impairment charges are recognized at the amount by which the carrying amount of an asset exceeds the fair value of the asset. Assets to be disposed of are reported at the lower of the carrying amount or the fair value less costs to sell. The Company has not recognized any impairment or disposition of long-lived assets.

Deposits and other assets

Deposits and other current assets consist primarily of payments made in advance to outsourced mold development manufacturers and equipment suppliers, as well as a receivable due from the U.S. Food and Drug Administration (FDA) related to a Prescription Drug User Fee Act (PDUFA) New Drug Application (NDA) fee that was refunded to the Company in March 2017.

Throughout 2016, the Company made upfront payments to outsourced mold development manufacturers and equipment suppliers for molds and equipment that are expected to be used for commercial production of XHANCE, should FDA approval be obtained for the product candidate. The Company expects to take delivery of this equipment at various points in 2017. For equipment received prior to FDA approval, the Company expects to record the equipment as a component of research and development expense if there is no alternative future use of the equipment without FDA approval, and accordingly, deposits made through December 31, 2016 for which there is currently not an alternative future use have been recorded as short term deposits. Conversely, deposits on equipment that were determined to have an alternative future use will be capitalized as fixed assets when received and therefore are classified in long-term deposits at December 31, 2016.

Convertible debt

The Company analyzes its convertible debt instruments for embedded derivatives that may require bifurcation from the host and accounted for as derivatives. At the inception of each instrument, the Company performs an analysis of the embedded features requiring bifurcation and may elect, if eligible, to account for the entire debt instrument at fair value. If elected, any changes in fair value are recognized in the accompanying statements of operations and comprehensive loss until the instrument is settled. The Company has not elected to account for its convertible debt at fair value.

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

3. Basis of Presentation and Summary of Significant Accounting Policies (Continued)

Revenue recognition

The Company's revenues are generated primarily through licensing arrangements, which generally contain multiple elements, or deliverables, including licenses and research and development activities to be performed by the Company on behalf of the licensee. Revenues are recognized when (1) persuasive evidence of an arrangement exists, (2) delivery has occurred or services have been rendered, (3) the price is fixed or determinable and (4) collectability is reasonably assured.

Currently the Company's revenues are generated pursuant to the terms of a single license agreement (the AVP-825 License Agreement) with Avanir Pharmaceuticals, Inc. (Avanir) (Note 7). The AVP-825 License Agreement includes licensed rights to patented technology, non-refundable up-front license fees, research services, and regulatory and sales milestones as well as royalty payments.

For arrangements with multiple elements, the Company recognizes revenue in accordance with the FASB ASU No. 2009-13, *Multiple-Deliverable Revenue Arrangements*, which provides guidance for separating and allocating consideration in a multiple element arrangement. The selling prices of deliverables under an arrangement may be derived using third-party evidence (TPE), or a best estimate of selling price (BESP), if vendor-specific objective evidence of selling price (VSOE) is not available. The objective of BESP is to determine the price at which the Company would transact a sale if the element within the License Agreement was sold on a standalone basis. Deliverables under the arrangement are separate units of accounting if (i) the delivered item has value to the customer on a standalone basis and (ii) if the arrangement includes a general right of return relative to the delivered item, and delivery or performance of the undelivered item is considered probable and substantially within the Company's control. The arrangement consideration that is fixed or determinable at the inception of the arrangement is allocated to the separate units of accounting based on their relative selling prices. The appropriate revenue recognition model is applied to each element and revenue is accordingly recognized as each element is delivered. Management exercises significant judgment in determining whether a deliverable is a separate unit of accounting.

In determining the separate units of accounting for the Company's collaborations, the Company evaluated whether the AVP-825 License Agreement has standalone value to the collaborator based on consideration of the relevant facts and circumstances for each arrangement. Factors considered in this determination include the research and development capabilities of the collaborator and the availability of relevant research expertise in the marketplace. In addition, the Company considers whether or not (i) the collaborator could use the license for its intended purpose without the receipt of the remaining deliverables, (ii) the value of the license was dependent on the undelivered items and (iii) the collaborator or other vendors could provide the undelivered items.

Whenever the Company determines that an element is delivered over a period of time, revenue is recognized using either a proportional performance model, if a pattern of performance can be determined, or a straight-line model over the period of performance, which is typically the research and development term.

Development milestones may be triggered either by the results of the Company's research efforts or by events external to it, such as regulatory approval to market a product. Consideration that is contingent upon achievement of a development milestone is recognized in its entirety as revenue in the period in which the

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

3. Basis of Presentation and Summary of Significant Accounting Policies (Continued)

milestone is achieved, but only if the consideration earned from the achievement of a milestone meets all the criteria for the milestone to be considered substantive at the inception of the arrangement. For a milestone to be considered substantive, the consideration earned by achieving the milestone must (i) be commensurate with either the Company's performance to achieve the milestone or the enhancement of the value of the item delivered as a result of a specific outcome resulting from the Company's performance to achieve the milestone, (ii) relate solely to past performance and (iii) be reasonable relative to all deliverables and payment terms in the AVP-825 License Agreement. As of December 31, 2016, all development milestones have been achieved.

Royalties and sales milestones are recorded as earned in accordance with the contract terms when third party sales can be reliably measured and collectability is reasonably assured.

Grant income

Government grants are agreements that provide cost reimbursement for certain research and development activities over a contractually defined period. Income from government grants is recognized in the period in which related costs are incurred, provided that the conditions under which government grants were provided have been met and only perfunctory obligations are outstanding. Grant income received in excess of costs incurred is recognized as deferred other income.

Research and development

Research and development costs are expensed as incurred. Research and development costs consist primarily of device development, clinical trial related costs, and regulatory related costs. The Company enters into agreements with contract research organizations (CROs) to facilitate, coordinate and perform agreed upon research and development activities for the Company's clinical trials. These CRO contracts typically call for the payment of fees for services at the initiation of the contract and/or upon the achievement of certain clinical trial milestones. The Company prepays certain CRO fees whereby the prepayments are recorded as a current or non-current prepaid asset and are amortized into research and development expense over the period of time the contracted research and development services were performed. The Company's CRO contracts generally also included other fees such as project management and pass through fees whereby the Company expenses these costs as incurred, using the Company's best estimate. Pass through fees include, but are not limited to, regulatory expenses, investigator fees, travel costs, and other miscellaneous costs. Pass through fees incurred are based on the amount of work completed for the clinical trials and are monitored through reporting provided by the Company's CROs.

Stock-based compensation

The Company measures and recognizes compensation expense for all stock options awarded to employees and nonemployees based on the estimated fair value of the awards on the respective grant dates. The Company uses the Black-Scholes option pricing model to value its stock option awards. The Company recognized compensation expense for time-based awards on a straight-line basis over the requisite service period, which is generally the vesting period of the award. The Company recognized compensation expense for performance based awards when the performance condition is probable of achievement. Stock-based awards issued to nonemployees are revalued at each reporting period until the award vests. The Company accounts for forfeitures of stock option awards as they occur.

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

3. Basis of Presentation and Summary of Significant Accounting Policies (Continued)

Estimating the fair value of options requires the input of subjective assumptions, including the estimated fair value of the Company's common stock, the expected life of the options, stock price volatility, the risk-free interest rate and expected dividends. The assumptions used in the Company's Black-Scholes option-pricing model represent management's best estimates and involve a number of variables, uncertainties and assumptions and the application of management's judgment, as they are inherently subjective.

Dividends

Dividends on redeemable convertible preferred stock are accreted through a charge to additional paid-in-capital, if available, or to retained earnings (accumulated deficit).

Income taxes

The Company recognizes deferred tax assets and liabilities for temporary differences between the financial reporting basis and the tax basis of the Company's assets and liabilities and the expected benefits of net operating loss carryforwards. The impact of changes in tax rates and laws on deferred taxes, if any, applied during the period in which temporary differences are expected to be settled, is reflected in the Company's financial statements in the period of enactment. The measurement of deferred tax assets is reduced, if necessary, if, based on weight of the evidence, it is more likely than not that some, or all, of the deferred tax assets will not be realized. As of December 31, 2015 and 2016, the Company has concluded that a full valuation allowance is necessary for all of its net deferred tax assets. The Company had no amounts recorded for uncertain tax positions, interest or penalties in the accompanying consolidated financial statements.

Net income (loss) per common share

For the year ended December 31, 2016, the Company used the two-class method to compute net income (loss) per common share because the Company has issued securities (redeemable convertible preferred stock) that entitle the holder to participate in dividends and earnings of the Company. Under this method, net income is reduced by any dividends earned and the accretion of redeemable convertible preferred stock to its redemption value during the period. The remaining earnings (undistributed earnings) are allocated to common stock and each series of redeemable convertible preferred stock to the extent that each preferred security may share in earnings as if all of the earnings for the period had been distributed. The total earnings allocated to common stock is then divided by the number of outstanding shares to which the earnings are allocated to determine the earnings per share. The two-class method is not applicable during periods with a net loss, as the holders of the redeemable convertible preferred stock have no obligation to fund losses.

Diluted net income (loss) per common share is computed under the two-class method by using the weighted-average number of shares of common stock outstanding, plus, for periods with net income attributable to common stockholders, the potential dilutive effects of stock options, warrants, and convertible debt. In addition, the Company analyzes the potential dilutive effect of the outstanding redeemable convertible preferred stock and convertible debt under the "if-converted" method when calculating diluted earnings per share, in which it is assumed that the outstanding redeemable convertible preferred stock or convertible debt converts into common stock at the beginning of the period or when

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

3. Basis of Presentation and Summary of Significant Accounting Policies (Continued)

issued if later. The Company reports the more dilutive of the approaches (two class or "if-converted") as their diluted net income per share during the period.

For the year ended December 31, 2015, in which the Company reported a net loss, there was no dilutive effect under either the two-class or "if-converted" method. For the year ended December 31, 2016, the Company presented diluted net income per common share using the two-class method, which was more dilutive than the "if-converted" method.

Automatically upon the closing of a qualified initial public offering, all of the Company's outstanding redeemable convertible preferred stock will convert into common stock. In the accompanying consolidated statements of operations, unaudited pro forma basic and diluted net income (loss) per share of common stock has been prepared to give effect to the automatic conversion of all outstanding shares of redeemable convertible preferred stock as if this proposed initial public offering had occurred on the later of the beginning of the reporting period or the issuance date of the redeemable convertible preferred stock. Accordingly, the unaudited pro forma net income (loss) attributable to common stockholders used in the calculation of unaudited basic and diluted pro forma net income (loss) per share of common stock excludes the effects of accretion on convertible preferred stock.

The following table sets forth the computation of basic and diluted net income (loss) per share for the periods indicated:

	Years Ended December 31,	
	2015	2016
Basic net (loss) income per common share calculation:		
Net (loss) income attributable to common stockholders	$ (40,375)	$ 9,499
Less: undistributed earnings to participating securities	—	(7,884)
Net (loss) income attributable to common stockholders — basic	(40,375)	1,615
Weighted average common shares outstanding — basic	1,402,290	1,403,900
Net (loss) income per share of common stock — basic	$ (28.79)	$ 1.15
Diluted net (loss) income per common share calculation:		
Net (loss) income attributable to common stockholders	$ (40,375)	$ 9,499
Less: undistributed earnings to participating securities	—	(7,884)
Net (loss) income attributable to common stockholders — diluted	(40,375)	1,615
Weighted average common shares outstanding — basic	1,402,290	1,403,900
Stock options	—	320,613
Weighted average common shares outstanding — diluted	1,402,290	1,724,513
Net (loss) income per share of common stock — diluted	$ (28.79)	$ 0.94

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

3. Basis of Presentation and Summary of Significant Accounting Policies (Continued)

Diluted net income (loss) per common share for the years presented do not reflect the following potential common shares, as the effect would be antidilutive:

	Years Ended December 31,	
	2015	2016
Stock options	1,181,901	812,387
Common stock warrants	654,624	654,624
Convertible preferred stock	6,875,514	6,875,514
Convertible debt	653,930	663,985
Total	9,365,969	9,006,510

Foreign currency translation and transactions

Operations in non-US entities are recorded in the functional currency of each entity. For financial reporting purposes, the functional currency of an entity is determined by a review of the source of an entity's most predominant cash flows. The results of operations for any non-US dollar functional currency entities are translated from functional currencies into US dollars using the average currency rate during each month. Assets and liabilities are translated using currency rates at the end of the period. Adjustments resulting from translating the financial statements of our foreign entities that use their local currency as the functional currency into US dollars are reflected as a component of other comprehensive income (loss).

Foreign currency transaction losses resulting from exchange rate fluctuations on transactions denominated in a currency other than the functional currency totaled $89 and $60 in 2015 and 2016 respectively.

Segment information

Operating segments are defined as components of an enterprise about which separate discrete information is available for evaluation by the chief operating decision maker, or decision-making group, in deciding how to allocate resources and in assessing performance. The Company globally manages its business within one reportable segment. Segment information is consistent with how management reviews the business, makes investing and resource allocation decisions and assesses operating performance. At December 31, 2015 and 2016, all of the Company's revenues were derived from the AVP-825 License Agreement with Avanir, which was entered into by the Company's wholly owned subsidiary, OptiNose AS. Long-lived assets located outside of the United States were de minimis as of December 31, 2015 and 2016.

Recent accounting pronouncements

On March 30, 2016, the FASB issued ASU 2016-09, *Compensation — Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting*, which simplifies several aspects of the accounting for employee share-based payment transactions including the accounting for income taxes, forfeitures, and statutory tax withholding requirements, as well as classification in the statement of cash flows. The guidance is applicable to public business entities for fiscal years beginning after December 15, 2016 and interim periods within those years. The Company early adopted this guidance effective December 31, 2016, and there was no material impact on its results of operations, financial positions, or cash flows.

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

3. Basis of Presentation and Summary of Significant Accounting Policies (Continued)

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. The FASB issued the update to require the recognition of lease assets and liabilities on the balance sheet of lessees. The standard will be effective for fiscal years beginning after December 15, 2018, including interim periods within such fiscal years. The ASU requires a modified retrospective transition method with the option to elect a package of practical expedients. Early adoption is permitted. The Company is currently evaluating the potential impact of the adoption of this standard on its results of operations, financial position and cash flows and related disclosures.

In November 2015, the FASB issued ASU 2015-17, *Income Taxes (Topic 740): Balance Sheet Classification of Deferred Taxes*. The new guidance simplifies the presentation of deferred income taxes by requiring that deferred tax liabilities and assets be classified as noncurrent in a classified statement of financial position. ASU 2015-17 applies to all entities that present a classified statement of financial position. The current requirement that deferred tax liabilities and assets of a tax-paying component of an entity be offset and presented as a single amount is not affected by this ASU. For public entities, ASU 2015-17 is effective for financial statements issued for annual periods beginning after December 15, 2016, with earlier application permitted. The Company early adopted this guidance effective December 31, 2016, and there was no impact on the Company's financial position.

In April 2015, the FASB issued ASU No. 2015-03, *Interest — Imputation of Interest (Subtopic 835-30): Simplifying the Presentation of Debt Issuance Costs*. This newly issued accounting standard requires that debt issuance costs related to a recognized debt liability be presented in the balance sheet as a direct reduction from the carrying amount of that debt liability. Retrospective application is required. The amendments in this standard are effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2015. The Company adopted this guidance effective December 31, 2016, and accordingly, all deferred issuance costs are reflected as a reduction of the outstanding debt balances as of December 31, 2015 and 2016 in the consolidated balance sheets.

In August 2014, the FASB issued ASU 2014-15, *Presentation of Financial Statements — Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern*. The amendments in this update require a company's management to assess an entity's ability to continue as a going concern, and to provide related footnote disclosures in certain circumstances. The new standard is effective in the first annual period ending after December 15, 2016. Early application is permitted. The Company adopted this guidance during 2016 and there was no impact on its consolidated financial statements.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers (Topic 606)*, which will replace numerous requirements in US GAAP, including industry-specific requirements. This guidance provides a five step model to be applied to all contracts with customers, with an underlying principle that an entity will recognize revenue to depict the transfer of goods or services to customers at an amount that the entity expects to be entitled to in exchange for those goods or services. This statement requires extensive quantitative and qualitative disclosures covering the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including disclosures on significant judgments made when applying the guidance. The guidance is effective for annual reporting periods beginning after December 15, 2017 and interim periods within that reporting period. An entity can elect to apply the

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

3. Basis of Presentation and Summary of Significant Accounting Policies (Continued)

guidance under one of the following two methods: (i) retrospectively to each prior reporting period presented — referred to as the full retrospective method or (ii) retrospectively with the cumulative effect of initially applying the standard recognized at the date of initial application in retained earnings — referred to as the modified retrospective method.

The Company has not yet completed its final review of the impact of this guidance including the new disclosure requirements, as it is continuing to evaluate the impacts of adoption and the implementation approach to be used. The Company plans to adopt the new standard effective January 1, 2018. The Company continues to monitor additional changes, modifications, clarifications or interpretations being undertaken by the FASB, which may impact its current conclusions.

4. Deposits and Other Assets

Deposits and other assets consisted of the following:

	December 31,	
	2015	2016
Short-term		
Receivable due from the FDA	$ —	$ 2,038
Deposits on equipment	—	1,201
Other	171	255
Total short-term deposits and other assets	171	3,494
Long-term		
Deposits on equipment	$ —	$ 499
Other	1	54
Total long-term deposits and other assets	1	553
	$ 172	$ 4,047

5. Property and Equipment

Property and equipment, net, consisted of:

	December 31,	
	2015	2016
Computer equipment and software	$ 208	$ 293
Furniture and fixtures	72	121
Machinery and equipment	203	255
Leasehold improvements	—	28
	483	697
Less: accumulated depreciation	(292)	(374)
	$ 191	$ 323

Depreciation expense was $75 and $83 for the years ended December 31, 2015 and 2016, respectively.

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

6. Accrued Expenses

Accrued expenses consisted of:

	December 31,	
	2015	2016
Research and development expenses	$ 3,352	$ 736
Selling, general and administrative expenses	221	290
Bonus expense	—	1,390
Other	73	125
	$ 3,646	$ 2,541

7. AVP-825 License Agreement

In July 2013, the Company's wholly owned subsidiary, OptiNose AS, entered into the AVP-825 License Agreement with Avanir for the exclusive right to sell AVP-825 (now marketed as Onzetra® Xsail®), a product combining a low-dose powder form of sumatriptan with the Company's technology platform, for the acute treatment of migraines in adults and any follow-on products under development that consist of a formulation that contains triptans as the sole active ingredient. Through December 31, 2016, under the terms of the AVP-825 License Agreement, the Company received aggregate cash payments of $70,000 upon the achievement of certain development milestones. Under the terms of the License Agreement, the Company is eligible to receive up to $50,000 upon the achievement of sales milestones as well as tiered low double-digit royalty payments on net sales in the US, Canada and Mexico after such cumulative sales exceed a specified threshold.

The Company determined that there were two deliverables under the AVP-825 License Agreement: (i) the license which was delivered in July 2013 and (ii) its obligation to provide certain research and development services in execution of the development plan and to share equally in certain qualified third party development costs through FDA approval. The Company concluded that the license had standalone value to Avanir and was separable from the research and development services, given Avanir has significant research capabilities in the field.

As a result, the license and research services qualify as separate units of accounting and the value of the license and the value of the research services were separately valued based upon the estimated selling price of each deliverable. The value attributable to the license was recognized up-front upon delivery of the license and the values attributable to the research services were deferred and recognized over the period in which the related services were to be delivered based upon a percentage of costs incurred in each respective reporting period. The estimated selling price of each deliverable was determined using the BESP. The BESP reflects the Company's best estimate of what the selling price would be if the deliverable was regularly sold on a stand-alone basis.

In conjunction with the AVP-825 License Agreement, the Company recognized $85 and $47,500 as licensing revenue for the years ended December 31, 2015 and 2016, respectively. The $47,500 of license

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

7. AVP-825 License Agreement (Continued)

revenues in 2016 related to the FDA approval milestone, which was achieved in January 2016 and was received in cash in February 2016.

8. Convertible Notes

At December 31, 2015 and 2016, the Company's convertible notes payable, net, balance was as follows:

	December 31,	
	2015	2016
Face amount	$ 15,000	$ 15,000
Front end fees	(375)	(75)
Debt issuance costs	(220)	(44)
Back end fees	75	375
Convertible notes payable, net	$ 14,480	$ 15,256

On September 30, 2015, the Company entered into a Senior Secured Convertible Note Purchase Agreement (Notes) with various existing shareholders. The Notes provided the Company with up to $30,000 in capital available in two separate tranches. The first tranche of $15,000 closed on September 30, 2015. The second tranche of up to $15,000 was available to the Company until March 30, 2017. The Notes bore an annual interest rate of 17% and were scheduled to mature on September 30, 2020. The Notes also bore front end fees of $450, which were paid at issuance, and back end fees of $450 plus interest that were to be paid at maturity. The Notes may be repaid at any time in $100 increments, did not contain any prepayment penalties and were secured by assets of OptiNose Inc. and OptiNose US, Inc. At the option of the majority purchaser of the Notes after March 30, 2017 or prior to March 30, 2017 if an event of default had occurred or was continuing under the Notes, all note principal along with any accrued interest and back end fees thereon, could be converted into Series C-2 shares of preferred stock at a conversion price based upon a Company valuation equal to the lower of fair market value and $300,000.

As of December 31, 2015, the fair value of the Notes approximated its carrying value given the proximity of the issuance date of the Notes to the year-end balance sheet date. As of December 31, 2016, the fair value of the Notes was $21,814, which was estimated based upon the as-converted value of the Notes as of December 31, 2016. The Company developed its own assumptions that did not have observable inputs or available market data to support the estimated fair value of its convertible notes. Due to the nature of these inputs, they were considered Level 3 fair value measurements.

The Company recorded $819 and $3,517 in interest expense during the years ended December 31, 2015 and 2016, respectively, in conjunction with the Notes. Total coupon interest on the Notes and back end fees was $669 and $2,740 during the years ended December 31, 2015 and 2016, respectively. The front end fees of $450 were recorded as debt discount at issuance and are being amortized to interest expense over the 18 month loan conversion period. During the years ended December 31, 2015 and 2016, the Company recorded a total of $75 and $300 of interest expense related to the front end fees. Additionally,

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

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8. Convertible Notes (Continued)

back end fees of $450 were also being amortized to interest expense over the 18 month loan conversion period of which $75 and $300 was recorded as interest expense and as an increase in the carrying amount of the Notes in the years ended December 31, 2015 and 2016, respectively. The Company also incurred $265 in debt issuance costs during the year ended December 31, 2015, which were also being amortized to interest expense over the 18 month loan conversion period.

In connection with the Company's Series D financing in March 2017 (Note 14), the Notes and associated accrued interest and back fees thereon totaling $19,527 converted into 687,474 shares of Series C-2 Preferred Stock as a per share conversion price of approximately $28.40.

9. Commitments and Contingencies

Leases

The Company leases office space under three operating leases. In October 2016, the Company entered into new leases for its corporate headquarters in the US and its office in Norway. Rent expense is recognized as incurred.

The following is a schedule of future minimum annual payments at December 31, 2016 under non-cancelable operating lease agreements:

For the years ending December 31:	
2017	$ 657
2018	178
2019	15
Total future minimum lease payments at December 31, 2016	$ 850

Rent expense under these operating leases was approximately $312 and $407 for the years ended December 31, 2015 and 2016, respectively.

Employment agreements

The Company has entered into employment contracts with its officers and certain employees that provide for severance and continuation of benefits in the event of termination of employment by the Company without cause. In addition, in the event of termination of employment following a change in control, the vesting of certain equity awards may be accelerated.

Litigation

Liabilities for loss contingencies arising from claims, assessments, litigation, fines, penalties, and other sources are recorded when it is probable that a liability has been incurred and the amount can be reasonably estimated. There are no matters currently outstanding.

Retirement plans

For U.S. employees, the Company maintains a defined contribution 401(k) retirement plan, which covers all employees. Employees are eligible on the first of the month following their date of hire. Under the

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

9. Commitments and Contingencies (Continued)

401(k) plan, participating employees may defer up to 100% of their pre-tax salary but not more than statutory limits. There is currently no employer matching of employee contributions and employee contributions vest immediately.

For Norway and UK employees, the Company maintains defined contribution pension plans which meet statutory requirements of those jurisdictions. The Company incurred costs of approximately $24 related to the pension plans in each of the years ended December 31, 2015 and 2016.

10. Redeemable Convertible Preferred Stock

Redeemable convertible preferred stock (Preferred Stock) consisted of the following:

Class	Authorized	Issued and Outstanding	Balance as of December 31, 2015	Balance as of December 31, 2016	Liquidation value at December 31, 2016
Series A	285,480	285,480	$ 5,381	$ 5,381	$ 5,381
Series B-1	35,680	35,680	673	673	673
Series B-2	782,600	782,600	14,760	14,760	14,760
Series C	4,115,344	4,115,344	96,168	105,738	106,724
Series C-1	1,656,410	1,656,410	38,077	41,621	41,843
	6,875,514	6,875,514	$ 155,059	$ 168,173	$ 169,381

In July 2015, the Company's existing investors and members of management purchased 236,629 Series C-1 shares for $21.13 per share for gross proceeds of $5,000. The Company paid a 3% funding fee upon receipt of the 2015 proceeds as well as certain issuance costs which totaled $162.

Certain provisions of the outstanding Preferred Stock are as follows:

- *Conversion:* Each share of Preferred Stock is convertible, at the option of the holder, into shares of common stock, on a one-to-one basis, subject to adjustment for certain events. The conversion price may be adjusted to prevent dilution of the Preferred Stock.

  The Preferred Stock is also mandatorily convertible upon the closing of an initial public offering or by a written election by a supermajority of the various classes of preferred stockholders.

- *Dividends:* All classes of Preferred Stock participate in any dividends with common stockholders on an as-converted basis.

- *Liquidation:* In the event of the liquidation, dissolution, or winding up of the affairs of the Company (a Liquidity Event), the holders of Preferred Stock are entitled to receive a liquidation preference prior to any payment to the holders of Common Stock (Series C-1 and Series C Preferred Stock ranking pari passu to each other and senior to the Series A, Series B-1 and Series B-2 Preferred Stock).

  Each share of Series C and Series C-1 carries an 8% minimum compounded annual return for purposes of calculating their respective liquidation preference. This minimum compounded annual

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Notes to Consolidated Financial Statements (Continued)

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10. Redeemable Convertible Preferred Stock (Continued)

return is treated as a deemed dividend under GAAP. The liquidation preference for each share of Series C and Series C-1 Preferred Stock is equal to $17.20 and $21.13 (plus any declared and unpaid dividends), respectively, plus the greater of (i) its minimum compounded annual return or (ii) participation on an as converted basis in any proceeds to be distributed to holders of preferred stock or common stock after payment in full of all preferential amounts. The liquidation preference for each share of Series A, Series B-1, and Series B-2 Preferred Stock is $18.85, $18.85, and $18.86 (plus any declared and unpaid dividends), respectively. Additionally, the (i) sale or exclusive license by the Company of all or substantially all of the assets or intellectual property of the Company (whether by merger, exclusive license or otherwise), (ii) merger, consolidation, share exchange or other reorganization or combination in which the shares of capital stock of the Company immediately prior to such transaction represent, immediately after such transaction, securities representing less than 50% of the voting power of the Company or other entity surviving such transaction, or (iii) acquisition by a single person, entity or affiliated group of more than 50% of the Company's voting power, shall, unless the holders of Preferred Stock representing a supermajority elect otherwise, be regarded as a Liquidity Event.

§ *Redemption:* At the election of a majority of the Series C and Series C-1 stockholders, all classes of Preferred Stock are redeemable at any time after June 7, 2017 (subsequently extended to March 24, 2020. See Note 14). Due to this redemption feature, the Company's Preferred Stock has been classified within temporary equity on the consolidated balance sheets at December 31, 2015 and 2016.

11. Stock-based Compensation

The Company issues stock-based awards pursuant to its 2010 Stock Incentive Plan, as amended (the Plan). As of December 31, 2015 and 2016, 1,217,356 and 1,637,356 shares of the Company's common stock were authorized to be issued under the Plan, respectively. The amount, terms of grants, and exercisability provisions are determined and set by the Company's board of directors. The Company measures employee stock-based awards at grant-date fair value and records compensation expense on a straight-line basis over the vesting period of the award. Stock-based awards issued to nonemployees are revalued until the award vests. The Company recorded stock-based compensation expense in the following expense categories of its accompanying consolidated statements of operations for the years ended December 31, 2015 and 2016:

	2015	2016
Research and development	$ 354	$ 362
Selling, general and administrative	234	237
	$ 588	$ 599

The fair value of options is estimated using the Black-Scholes option pricing model, which takes into account inputs such as the exercise price, the value of the underlying common stock at the grant date, expected term, expected volatility, risk-free interest rate and dividend yield. There were no options granted

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

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11. Stock-based Compensation (Continued)

during the year ended December 31, 2015. The fair value of each grant of options during the year ended December 31, 2016 was determined using the methods and assumptions discussed below.

- The expected term of employee options is determined using the "simplified" method, as prescribed in SEC's Staff Accounting Bulletin (SAB) No. 107, whereby the expected life equals the arithmetic average of the vesting term and the original contractual term of the option due to the Company's lack of sufficient historical data. The expected term of nonemployee options is equal to the contractual term.

- The expected volatility is based on historical volatilities of similar entities within the Company's industry which were commensurate with the expected term assumption as described in SAB No. 107.

- The risk-free interest rate is based on the interest rate payable on US Treasury securities in effect at the time of grant for a period that is commensurate with the assumed expected term.

- The expected dividend yield is 0% because the Company has not historically paid, and does not expect for the foreseeable future to pay, a dividend on its common stock.

- As the Company's common stock has not historically been publicly traded, its board of directors periodically estimated the fair value of the Company's common stock considering, among other things, contemporaneous valuations of its common stock prepared by an unrelated third-party valuation firm in accordance with the guidance provided by the American Institute of Certified Public Accountants 2013 Practice Aid, Valuation of Privately-Held-Company Equity Securities Issued as Compensation.

For the year ended December 31, 2016, the grant date fair value of all option grants was estimated at the time of grant using the Black-Scholes option-pricing model using the following weighted average assumptions:

Risk free interest rate		2.22%
Expected term (in years)		6.08
Expected volatility		74.29%
Annual dividend yield		0.00%
Fair value of common stock	$	14.85

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

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11. Stock-based Compensation (Continued)

Service-based stock options

Options issued under the Plan generally have a contractual life of up to 10 years and may be exercisable in cash or as otherwise determined by the board of directors. Vesting generally occurs over a period of not greater than four years. The following table summarizes the activity related to service-based stock option grants to employees and nonemployees for the years ended December 31, 2015 and 2016:

	Shares	Weighted average exercise price per share	Weighted average remaining contractual life
Balance at January 1, 2015	423,626	$ 5.58	6.83
Granted	—		
Exercised	—		
Forfeited	—		
Outstanding at December 31, 2015	423,626	5.58	5.83
Granted	238,500	14.85	
Exercised	(3,125)	8.80	
Forfeited	(3,125)	8.80	
Outstanding at December 31, 2016	655,876	$ 8.92	6.67
Exercisable at December 31, 2016	376,538	$ 5.18	4.57
Vested and expected to vest at December 31, 2016	655,876	$ 8.92	6.67

During the years ended December 31, 2015 and 2016, stock based compensation expense includes $155 and $166, respectively, related to awards that vested during the period. As of December 31, 2016, the unrecognized compensation cost related to unvested service-based stock options expected to vest was $2,490. This unrecognized compensation will be recognized over an estimated weighted-average amortization period of 3.74 years. The total aggregate intrinsic value of service-based options exercised during the year ended December 31, 2016 was $20. The aggregate intrinsic value of service-based options outstanding and service-based options exercisable as of December 31, 2016 was $3,891 and $3,644, respectively. Service-based options granted during the year ended December 31, 2016 had grant date weighted average fair values of $9.86 per option.

Performance-based stock options

The Company has issued performance-based stock options under the Plan which generally have a ten-year life from the date of grant and may vest upon the achievement of certain milestones in connection with the Company's development programs. Additionally, the Company has issued options in excess of the fair market value of common shares on the issuance date that are only exercisable upon a change in control or upon or after an initial public offering. Compensation expense for performance-based stock options is only recognized when management determines it is probable that the awards will vest.

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

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11. Stock-based Compensation (Continued)

The following table summarizes the activity related to performance-based stock option grants to employees and nonemployees for the years ended December 31, 2015 and 2016:

	Shares	Weighted average exercise price per share	Weighted average remaining contractual life
Balance at January 1, 2015	758,275	$ 27.54	8.21
Granted	—		
Exercised	—		
Forfeited	—		
Outstanding at December 31, 2015	758,275	27.54	7.21
Granted	100,000	47.10	
Exercised	(3,125)	8.80	
Forfeited	(103,125)	45.94	
Outstanding at December 31, 2016	752,025	$ 27.70	6.55
Exercisable at December 31, 2016	176,013	$ 5.65	4.97

During the years ended December 31, 2015 and 2016, stock based compensation expense includes $433 related to performance awards that either vested or were deemed probable of vesting during the period. As of December 31, 2016, there was $3,121 of unrecognized compensation cost related to unvested performance-based stock options that will vest and be expensed when the occurrence of the performance condition is deemed probable. The total aggregate intrinsic value of performance-based options exercised during the year ended December 31, 2016 was $20. The aggregate intrinsic value of performance-based options outstanding and performance-based options exercisable as of December 31, 2016, was $3,238 and $1,619, respectively. Performance-based options granted during the year ended December 31, 2016 had grant date weighted average fair values of $6.61 per option.

Common stock warrants

The Company also has 654,624 common stock warrants outstanding with an exercise price of $23.56 per share that expire in 2020.

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

12. Income Taxes

Income (loss) before income tax expense was as follows:

	December 31,	
	2015	2016
Domestic operations	$ (1,366)	$ (4,967)
Foreign operations	(26,948)	27,580
Income (loss) before provision for income taxes	$ (28,314)	$ 22,613

A reconciliation of income tax expense (benefit) at the statutory federal income tax rate and income taxes as reflected in the financial statements was as follows:

	December 31,	
	2015	2016
Income tax expense at statutory rate	35.00%	35.00%
Permanent items	(0.02)	0.04
Foreign rate differential	(9.52)	(12.24)
State taxes, net of federal benefit	0.31	(1.40)
Increase (decrease) in tax reserves	—	—
Change in valuation allowance	(25.77)	(21.40)
Effective income tax rate	0.00%	0.00%

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

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12. Income Taxes (Continued)

The principal components of the Company's deferred tax assets and liabilities were as follows:

	December 31,	
	2015	2016
Deferred tax assets:		
Accrued expenses and other	$ 10	$ 539
Interest expense	149	677
Stock compensation	864	1,092
Research and development	2,183	2,183
Net operating losses	28,430	22,695
Total deferred tax assets	31,636	27,186
Deferred tax liabilities:		
Fixed assets	(8)	(46)
Total deferred tax liabilities	(8)	(46)
Less: valuation allowance	(31,628)	(27,140)
Total net deferred tax assets (liabilities)	$ —	$ —

As of December 31, 2016, the Company had foreign net operating loss (NOL) carry forwards of $80,570 from its operations in Norway and the UK, which are available to reduce future foreign taxable income. As of December 31, 2016, the Company had US federal and state NOLs of $11,574. These domestic NOL carry forwards may become subject to an annual limitation in the event of certain cumulative changes in the ownership interest of significant stockholders over a three-year period in excess of 50%. This could limit the amount of NOLs that the Company can utilize annually to offset future domestic taxable income or tax liabilities, if any. The amount of the annual limitation, if any, will be determined based on the value of the Company immediately prior to the ownership change. Subsequent ownership changes may further affect the limitation in future years. These federal and state NOLs will begin to expire in 2030 through 2036.

ASC 740 requires a valuation allowance to reduce the deferred tax assets reported if, based on the weight of available evidence, it is more likely than not that some portion or all of the deferred tax assets will not be realized. After consideration of all the evidence, both positive and negative, the Company has recorded a full valuation allowance against its deferred tax assets at December 31, 2015 and 2016, respectively, because the Company's management has determined that is it more likely than not that these assets will not be fully realized. The Company experienced a net change in valuation allowance of $4,488 for the year ended December 31, 2016.

At December 31, 2016, no provision has been made for US federal and state income taxes of foreign earnings due to the history of foreign losses. However, the Company expects that the future earnings, if

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

12. Income Taxes (Continued)

any, of its foreign subsidiaries will be reinvested indefinitely. Upon becoming profitable, if ever, distribution of these earnings, in the form of dividends or otherwise, may result in the Company falling subject to US income taxes and foreign withholding taxes. The determination of the amount of unrecognized deferred US income tax and foreign withholding tax liabilities on these future earnings, if any, is not practicable because of the complexities with the hypothetical calculations.

The Company files income tax returns in Norway, the UK, the US, and various states within the US. In the normal course of business, the Company is subject to examination by federal, state and foreign jurisdictions, where applicable. The Company's tax years in the US are still open under statute from inception to present. All open years may be examined to the extent that tax credit or net operating loss carryforwards are used in future periods.

The Company's policy is to record interest and penalties related to uncertain tax positions in income tax expense. As of December 31, 2015 and 2016, the Company had no accrued interest or penalties related to uncertain tax positions and no amounts have been recognized in the Company's statement of operations.

13. Related-party transactions

Convertible debt

All of the Company's convertible debt (see Note 8) is held by the Company's holders of convertible Preferred Stock.

14. Subsequent Events

In March 2017, the Company was refunded $2,038 from the FDA, which was recorded as a receivable within deposits and other current assets as of December 31, 2016.

In March through May 2017, the Company completed the sale of 1,117,578 shares of Series D Preferred Stock at a per share purchase price of $32.85, resulting in gross proceeds to the Company of $36,712 (the Series D Financing). In connection with the Series D Financing, the Company's existing convertible notes and associated accrued interest and back end fees thereon totaling $19,527 converted into 687,474 shares of Series C-2 Preferred Stock at a per share conversion price of approximately $28.40.

Certain provisions of the Series D Preferred Stock are as follows:

- *Conversion:* Each Series D share is convertible, at the option of the holder, into shares of common stock, on a one-to-one basis, subject to adjustment for certain events. The shares are also mandatorily convertible upon (i) the closing of a firm commitment underwritten public offering resulting in the listing of the Company's common stock on a nationally recognized stock exchange or securities market, or (ii) by the election of holders representing at least a majority of the issued and outstanding Series D shares.

- *Redemption:* At the election of the holders of a majority of the Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock at any time after March 24, 2020, all of the outstanding shares of Series D Preferred Stock (and the Company's other Preferred Stock) shall be redeemed by the Company for its minimum liquidation preference (including any declared and unpaid dividends).

OptiNose, Inc.

Notes to Consolidated Financial Statements (Continued)

For the years ended December 31, 2015 and 2016

(in thousands, except share and per share data)

14. Subsequent Events (Continued)

- *Dividends:* The Series D Preferred Stock shall participate in any dividends with common stockholders on an as converted basis with the Company's other outstanding Preferred Stock.

- *Liquidation:* The Series D Preferred Stock ranks senior to the Series B Preferred Stock, Series A Preferred Stock and common stock as to liquidation preference and is pari passu to the Series C Preferred Stock, Series C-1 Preferred Stock and Series C-2 Preferred Stock. The Series D Preferred Stock carries an 8% minimum compounded annual return. In the event of a liquidation, dissolution or winding up of the affairs of the Company, each share of Series D Preferred Stock shall be entitled to a liquidation preference equal to $32.85 per share (including any declared and unpaid dividends), plus the greater of (i) its minimum compounded annual return, or (ii) its participation on an as converted basis in any proceeds to be distributed to holders of Preferred Stock or common stock after payment in full of all preferential amounts.

The key provisions of the Series C-2 Preferred Stock are as follows:

- *Conversion:* Each Series C-2 share is convertible, at the option of the holder, into shares of common stock, on a one-to-one basis, subject to adjustment for certain events. The shares are also mandatorily convertible upon (i) the closing of a firm commitment underwritten public offering resulting in the listing of the Company's common stock on a nationally recognized stock exchange or securities market, or (ii) by the election of holders representing at least 75% of the issued and outstanding shares of Preferred Stock (other than Series D shares).

- *Redemption:* At the election of the holders of a majority of the Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock at any time after March 24, 2020, all of the outstanding shares of Series C-2 Preferred Stock (and Company's other Preferred Stock) shall be redeemed by the Company for its minimum liquidation preference (including any declared and unpaid dividends).

- *Dividends:* The Series C-2 Preferred Stock shall participate in any dividends with common stockholders on an as converted basis with the Company's other outstanding Preferred Stock.

- *Liquidation:* The Series C-2 Preferred Stock ranks senior to the Series B Preferred Stock, Series A Preferred Stock and common stock as to liquidation preference and is pari passu to the Series C Preferred Stock, Series C-1 Preferred Stock and Series D Preferred Stock. The Series C-2 Preferred Stock carries an 8% minimum compounded annual return. In the event of a liquidation, dissolution or winding up of the affairs of the Company, each share of Series C-2 Preferred Stock shall be entitled to a liquidation preference equal to $28.40 per share (including any declared and unpaid dividends), plus the greater of (i) its minimum compounded annual return, or (ii) participate on an as converted basis in any proceeds to be distributed to holders of Preferred Stock or common stock after payment in full of all preferential amounts.

In conjunction with the Series D financing, the number of authorized shares of common stock was increased from 10,624,486 to 13,067,149 and the number of authorized shares of Preferred Stock was increased from 6,875,514 to 8,932,851, of which 1,369,863 shares were designated as Series D shares and 687,474 shares were designated as Series C-2 shares. Also, the redemption date for all classes of the Company's Preferred Stock was extended to March 24, 2020 and the terms upon which all classes of Preferred Stock would mandatorily convert into common stock in connection with an underwritten public offering were revised to align with the terms of the Series C-2 Preferred Stock.

On September 18, 2017, the FDA approved the Company's NDA for XHANCE for the treatment of nasal polyps in adults.

OptiNose, Inc.
Consolidated Balance Sheets
(in thousands, except share and per share data)

	December 31, 2016	June 30, 2017 (unaudited)	Pro Forma June 30, 2017 (unaudited)
Assets			
Current assets:			
Cash and cash equivalents	$ 36,797	$ 58,887	$ 58,887
Grants and other receivables	384	219	219
Deposits and other current assets	3,494	1,808	1,808
Total current assets	40,675	60,914	60,914
Property and equipment, net	323	1,142	1,142
Deferred offering costs	—	1,567	1,567
Deposits and other assets — long-term	553	339	339
Total assets	$ 41,551	$ 63,962	$ 63,962
Liabilities, redeemable convertible preferred stock and stockholders' (deficit) equity			
Current liabilities:			
Accounts payable	$ 3,369	$ 2,311	$ 2,311
Accrued expenses	2,541	3,781	3,781
Deferred other income	—	133	133
Total current liabilities	5,910	6,225	6,225
Convertible notes payable, net	15,256	—	—
Accrued interest	3,409	—	—
Total liabilities	24,575	6,225	6,225
Redeemable convertible preferred stock, $0.001 par value:			
Series A, 285,480 shares authorized, issued and outstanding actual (liquidation value of $5,381 at June 30, 2017)	5,381	5,381	—
Series B-1, 35,680 shares authorized, issued and outstanding actual (liquidation value of $673 at June 30, 2017)	673	673	—
Series B-2, 782,600 shares authorized, issued and outstanding actual (liquidation value of $14,760 at June 30, 2017)	14,760	14,760	—
Series C, 4,115,344 shares authorized, issued and outstanding actual (liquidation value of $110,993 at June 30, 2017)	105,738	110,840	—
Series C-1, 1,656,410 shares authorized, issued and outstanding actual (liquidation value of $43,517 at June 30, 2017)	41,621	43,517	—
Series C-2, 0 and 687,474 shares authorized, issued and outstanding at December 31, 2016 and June 30, 2017, respectively, actual (liquidation value of $19,951 at June 30, 2017)	—	19,951	—
Series D, 0 and 1,369,863 shares authorized at December 31, 2016 and June 30, 2017, respectively, 0 and 1,117,578 shares issued and outstanding December 31, 2016 and June 30, 2017,respectively, actual (liquidation value of $37,496 at June 30, 2017)	—	37,296	—
Total redeemable convertible preferred stock	168,173	232,418	—
Stockholders' (deficit) equity:			
Common stock, $0.001 par value; 10,624,486 and 13,067,149 shares authorized at December 31, 2016 and June 30, 2017, respectively; 1,408,540 shares issued and outstanding at December 31, 2016 and June 30, 2017, actual; 10,089,106 shares issued and outstanding pro forma June 30, 2017	1	1	10
Additional paid-in capital	—	—	232,409
Accumulated deficit	(151,099)	(174,577)	(174,577)
Accumulated other comprehensive loss	(99)	(105)	(105)
Total stockholders' (deficit) equity	(151,197)	(174,681)	57,737
Total liabilities, redeemable convertible preferred stock and stockholders' (deficit) equity	$ 41,551	$ 63,962	$ 63,962

See accompanying notes to unaudited interim consolidated financial statements

OptiNose, Inc.
Consolidated Statements of Operations
For the six months ended June 30, 2016 and 2017
(in thousands, except share and per share data)
(Unaudited)

	Six Months Ended June 30,	
	2016	2017
Licensing revenues	$ 47,500	$ —
Operating expenses:		
Research and development	8,373	8,979
Selling, general and administrative	3,296	6,661
Total operating expenses	11,669	15,640
Income (loss) from operations	35,831	(15,640)
Other (income) expense:		
Grant and other income	(166)	(93)
Interest income	(71)	(95)
Interest expense	1,747	862
Foreign currency losses (gains)	14	(31)
Net income (loss)	$ 34,307	$ (16,283)
Deemed dividend	5,502	7,150
Accretion to redemption value	1,055	1,074
Net income (loss) attributable to common stockholders	$ 27,750	$ (24,507)
Net income (loss) per share of common stock		
basic	$ 3.35	$ (17.40)
diluted	$ 2.74	$ (17.40)
Weighted average common shares outstanding		
basic	1,402,290	1,408,540
diluted	1,717,460	1,408,540
Pro forma net loss per share of common stock — basic and diluted		$ (1.76)
Pro forma weighted average common shares outstanding — basic and diluted		9,251,267

See accompanying notes to unaudited interim consolidated financial statements

OptiNose, Inc.
Consolidated Statements of Comprehensive Income and Loss
For the six months ended June 30, 2016 and 2017
(in thousands)
(Unaudited)

	Six Months Ended June 30,	
	2016	2017
Net income (loss)	$ 34,307	$ (16,283)
Other comprehensive income (loss):		
Foreign currency translation adjustment	29	(6)
Comprehensive income (loss)	$ 34,336	$ (16,289)

See accompanying notes to unaudited interim consolidated financial statements

OptiNose, Inc.
Consolidated Statements of Changes in Redeemable Convertible Preferred Stock and Stockholders' Deficit
For the six Months Ended June 30, 2017
(Unaudited)
(in thousands, except share data)

	Redeemable Convertible Preferred Stock		Stockholders' Deficit					
			Common Stock		Additional Paid -in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balance at December 31, 2016	6,875,514	$ 168,173	1,408,540	$ 1	$ —	$ (151,099)	$ (99)	$ (151,197)
Conversion of convertible debt to Series C-2 preferred stock	687,474	19,527	—	—	—	—	—	—
Sale of Series D preferred stock, net of issuance costs	1,117,578	36,494	—	—	—	—	—	—
Stock compensation expense	—	—	—	—	1,029	—	—	1,029
Accretion of Series C, Series C-1 & Series D preferred stock to redemption value	—	1,074	—	—	(1,029)	(45)	—	(1,074)
Accretion of Series C, Series C-1, Series C-2 & Series D preferred stock in lieu of 8% dividend	—	7,150	—	—	—	(7,150)	—	(7,150)
Foreign currency translation adjustment	—	—	—	—	—	—	(6)	(6)
Net loss	—	—	—	—	—	(16,283)	—	(16,283)
Balance at June 30, 2017	8,680,566	$ 232,418	1,408,540	$ 1	$ —	$ (174,577)	$ (105)	$ (174,681)

See accompanying notes to unaudited interim consolidated financial statements

OptiNose, Inc.
Consolidated Statements of Cash Flows
For the six months ended June 30, 2016 and 2017
(in thousands)
(Unaudited)

	Six Months Ended June 30,	
	2016	2017
Operating activities:		
Net income (loss)	$ 34,307	$ (16,283)
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities:		
Depreciation and amortization	39	66
Stock-based compensation	505	1,029
Amortization of debt discount and issuance costs	388	194
Changes in operating assets and liabilities:		
Grants and other receivables	(63)	165
Deposits and other assets	(966)	1,900
Accounts payable	(1,462)	(1,683)
Accrued expenses	(1,800)	184
Accrued interest	1,359	668
Deferred other income	81	133
Cash provided by (used in) operating activities	32,388	(13,627)
Investing activities:		
Purchases of property and equipment	(6)	(711)
Cash used in investing activities	(6)	(711)
Financing activities:		
Proceeds from the sale of Series D preferred stock	—	36,712
Cash paid for financing costs	—	(278)
Cash provided by financing activities	—	36,434
Effects of exchange rate changes on cash and cash equivalents	34	(6)
Net increase in cash and cash equivalents	32,416	22,090
Cash and cash equivalents at beginning of period	15,198	36,797
Cash and cash equivalents at end of period	$ 47,614	$ 58,887
Supplemental disclosure of noncash financing activities:		
Deemed dividend	$ 5,502	$ 7,150
Accretion to redemption value	$ 1,055	$ 1,074
Deferred offering costs within accounts payable and accrued expenses	$ —	$ 1,507
Conversion of convertible notes payable and accrued interest into Series C-2 preferred stock	$ —	$ 19,527

See accompanying notes to unaudited interim consolidated financial statements

OptiNose, Inc.

Notes to Unaudited Interim Consolidated Financial Statements

For the six months ended June 30, 2016 and 2017

(in thousands, except share and per share data)

1. Organization and Description of Business

OptiNose, Inc. (the Company) was incorporated in Delaware in May 2010 (inception) and its facilities are located in Yardley, Pennsylvania, Ewing, New Jersey, Oslo, Norway and Swindon, England. The Company's predecessor entity OptiNose AS was formed under the laws of Norway in September 2000. In 2010, OptiNose AS became a wholly-owned subsidiary of the Company as part of an internal reorganization.

The Company is a specialty pharmaceutical company focused on the development and commercialization of products for patients treated by ear, nose and throat (ENT) and allergy specialists. The Company's lead product candidate, XHANCE, is a therapeutic utilizing its proprietary Breath Powered exhalation delivery system (EDS) that delivers a topically-acting and potent anti-inflammatory corticosteroid for the treatment of chronic rhinosinusitis with and without nasal polyps. The Company's new drug application (NDA) for XHANCE was accepted for filing and review by the U.S. Food and Drug Administration (FDA) in January 2017.

2. Liquidity

Since inception, the Company's operations have focused on organization and staffing, business planning, raising capital, establishing an intellectual property portfolio and conducting preclinical studies and clinical trials. The Company has not generated any revenue from product sales. As of June 30, 2017, the Company had cash and cash equivalents of $58,887. During the six months ended June 30, 2017, the Company sold 1,117,578 shares of Series D preferred stock, which resulted in gross proceeds to the Company of $36,712 (Note 9).

The Company will need to secure additional funding in the future, from one or more equity or debt financings, collaborations, or other sources, in order to carry out all of the Company's planned development and commercial activities. If additional funding is not secured when required, the Company may need to delay or curtail its operations until such funding is received. The Company is subject to a number of risks similar to other life sciences companies, including, but not limited to, successful discovery and development of its drug candidates, raising additional capital, the development by its competitors of new technological innovations, protection of proprietary technology and market acceptance of the Company's products.

3. Basis of Presentation and Summary of Significant Accounting Policies

The accompanying unaudited interim consolidated financial statements have been prepared in conformity with United States (US) generally accepted accounting principles (GAAP). Any reference in these notes to applicable guidance is meant to refer to GAAP as found in the Accounting Standards Codification (ASC) and Accounting Standards Updates (ASU) of the Financial Accounting Standards Board (FASB).

In the opinion of management, the accompanying unaudited interim financial statements include all normal and recurring adjustments (which consist primarily of accruals and estimates that impact the financial statements) considered necessary to present fairly the Company's financial position as of June 30, 2017 and its results of operations and cash flows for the six months ended June 30, 2016 and 2017. Operating results for the six months ended June 30, 2017 are not necessarily indicative of the results that may be expected for the year ending December 31, 2017. The unaudited interim financial statements, presented herein, do not contain the required disclosures under GAAP for annual financial statements. The

OptiNose, Inc.

Notes to Unaudited Interim Consolidated Financial Statements (Continued)

For the six months ended June 30, 2016 and 2017

(in thousands, except share and per share data)

3. Basis of Presentation and Summary of Significant Accounting Policies (Continued)

accompanying unaudited interim financial statements should be read in conjunction with the annual audited financial statements and related notes as of and for the year ended December 31, 2016.

Principles of consolidation

The unaudited interim consolidated financial statements include the accounts of OptiNose, Inc. and its wholly-owned subsidiaries, OptiNose US, Inc., OptiNose AS and OptiNose UK Ltd. All inter-company balances and transactions have been eliminated in consolidation.

Unaudited pro forma financial information

Immediately prior to the closing of a qualified initial public offering, all of the Company's outstanding redeemable convertible preferred stock will automatically convert into common stock. The accompanying unaudited pro forma consolidated balance sheet as of June 30, 2017 assumes the conversion of all outstanding redeemable convertible preferred stock as of June 30, 2017, into an aggregate of 8,680,566 shares of common stock. In the accompanying unaudited interim consolidated statements of operations, unaudited pro forma basic and diluted net income (loss) per share of common stock has been prepared to give effect to the automatic conversion of all outstanding shares of redeemable convertible preferred stock as if this proposed initial public offering had occurred on the later of the beginning of the reporting period or the issuance date of the redeemable convertible preferred stock. Accordingly, the unaudited pro forma net income (loss) attributable to common stockholders used in the calculation of unaudited basic and diluted pro forma net income (loss) per share of common stock excludes the effects of accretion on convertible preferred stock.

Use of estimates

The preparation of the unaudited interim consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the unaudited interim consolidated financial statements and reported amounts of expenses during the reporting period. Due to the uncertainty of factors surrounding the estimates or judgments used in the preparation of the unaudited interim consolidated financial statements, actual results may materially vary from these estimates. Estimates and assumptions are periodically reviewed and the effects of revisions are reflected in the unaudited interim consolidated financial statements in the period they are determined to be necessary.

Fair value of financial instruments

At December 31, 2016 and June 30, 2017, the Company's financial instruments included cash and cash equivalents, grants receivable, accounts payable and accrued expenses. The carrying amounts reported in the Company's financial statements for these instruments approximates their respective fair values because of the short-term nature of these instruments. At December 31, 2016 and June 30, 2017, there were no financial assets or liabilities measured at fair value on a recurring basis.

The Company's financial instruments also included convertible debt at December 31, 2016 (Note 8).

Deposits and other assets

Deposits and other assets consist primarily of payments made in advance to outsourced mold development manufacturers and equipment suppliers, as well as a receivable due from the FDA at December 31, 2016

OptiNose, Inc.

Notes to Unaudited Interim Consolidated Financial Statements (Continued)

For the six months ended June 30, 2016 and 2017

(in thousands, except share and per share data)

3. Basis of Presentation and Summary of Significant Accounting Policies (Continued)

related to a Prescription Drug User Fee Act (PDUFA) NDA fee that the FDA refunded to the Company in March 2017.

Throughout 2016 and 2017, the Company made upfront payments to outsourced mold development manufacturers and equipment suppliers for molds and equipment that are expected to be used for commercial production of the XHANCE product should FDA approval be obtained for the product candidate. The Company expects to receive this equipment at various points in 2017. For equipment received prior to FDA approval, the Company expects to record the equipment as a component of research and development expense if there is no alternative future use of the equipment without FDA approval, and accordingly, deposits made through June 30, 2017 for which there is currently not an alternative future use have been recorded as short term deposits. Conversely, deposits on equipment that were determined to have an alternative future use will be capitalized as fixed assets when received and therefore are classified in long-term deposits at June 30, 2017.

Deferred offering costs

The Company capitalizes certain legal, accounting and other third-party fees that are directly associated with in-process equity financings as deferred offering costs until such financings are consummated, at which time these costs are netted against the proceeds from the equity financing. Should the equity financing no longer be considered probable of being consummated, all deferred offering costs will be charged to operating expenses in the consolidated statements of operations.

Net income (loss) per common share

For the six month period ended June 30, 2016, the Company used the two-class method to compute net income (loss) per common share because the Company has issued securities (redeemable convertible preferred stock) that entitle the holder to participate in dividends and earnings of the Company. Under this method, net income is reduced by the amount any dividends earned and the accretion of redeemable convertible preferred stock to its redemption value during the period. The remaining earnings (undistributed earnings) are allocated to common stock and each series of redeemable convertible preferred stock to the extent that each preferred security may share in earnings as if all of the earnings for the period had been distributed. The total earnings allocated to common stock is then divided by the number of outstanding shares to which the earnings are allocated to determine the earnings per share. The two-class method is not applicable during periods with a net loss, as the holders of the redeemable convertible preferred stock have no obligation to fund losses.

Diluted net income (loss) per common share is computed under the two-class method by using the weighted-average number of shares of common stock outstanding, plus, for periods with net income attributable to common stockholders, the potential dilutive effects of stock options, warrants, and convertible debt. In addition, the Company analyzes the potential dilutive effect of the outstanding redeemable convertible preferred stock and convertible debt under the "if-converted" method when calculating diluted earnings per share, in which it is assumed that the outstanding redeemable convertible preferred stock or convertible debt converts into common stock at the beginning of the period or when issued if later. The Company reports the more dilutive of the approaches (two class or "if-converted") as their diluted net income per share during the period.

OptiNose, Inc.

Notes to Unaudited Interim Consolidated Financial Statements (Continued)

For the six months ended June 30, 2016 and 2017

(in thousands, except share and per share data)

3. Basis of Presentation and Summary of Significant Accounting Policies (Continued)

For the six months ended June 30, 2017 in which the Company reported a net loss, there is no dilutive effect under either the two-class or "if-converted" method. For the six months ended June 30, 2016, the Company presented diluted net income per common share using the two-class method, which was more dilutive than the "if-converted" method.

The following table sets forth the computation of basic and diluted net income (loss) per share for the periods indicated:

	Six Months Ended June 30,	
	2016	2017
Basic net income (loss) per common share calculation:		
Net income (loss) attributable to common stockholders	$ 27,750	$ (24,507)
Less: undistributed earnings to participating securities	(23,049)	—
Net income (loss) attributable to common stockholders — basic	4,701	(24,507)
Weighted average common shares outstanding — basic	1,402,290	1,408,540
Net income (loss) per share of common stock — basic	$ 3.35	$ (17.40)
Diluted net income (loss) per common share calculation:		
Net income (loss) attributable to common stockholders	$ 27,750	$ (24,507)
Less: undistributed earnings to participating securities	(23,049)	—
Net income (loss) attributable to common stockholders — diluted	4,701	(24,507)
Weighted average common shares outstanding — basic	1,402,290	1,408,540
Stock options	315,170	—
Weighted average common shares outstanding — diluted	1,717,460	1,408,540
Net income (loss) per share of common stock — diluted	$ 2.74	$ (17.40)

Diluted net income (loss) per common share for the periods presented do not reflect the following potential common shares, as the effect would be antidilutive:

	Six Months Ended June 30,	
	2016	2017
Stock options	580,137	1,522,901
Common stock warrants	654,624	654,624
Convertible debt	590,870	—
Convertible preferred stock	6,875,514	8,680,566
Total	8,701,145	10,858,091

OptiNose, Inc.

Notes to Unaudited Interim Consolidated Financial Statements (Continued)

For the six months ended June 30, 2016 and 2017

(in thousands, except share and per share data)

3. Basis of Presentation and Summary of Significant Accounting Policies (Continued)

Recent accounting pronouncements

In May 2014, the FASB issued ASU 2014-09, Revenue from Contracts with Customers (Topic 606), which will replace numerous requirements in US GAAP, including industry-specific requirements. This guidance provides a five-step model to be applied to all contracts with customers, with an underlying principle that an entity will recognize revenue to depict the transfer of goods or services to customers at an amount that the entity expects to be entitled to in exchange for those goods or services. The new standard also defines accounting for certain costs related to origination and fulfillment of contracts with customers, including whether such costs should be capitalized. This statement requires extensive quantitative and qualitative disclosures covering the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including disclosures on significant judgements made when applying the guidance and assets recognized from costs incurred to obtain or fulfill a contract. The guidance is effective for annual reporting periods beginning after December 15, 2017, and interim periods within that reporting period. An entity can elect to apply the guidance under one of the following two methods: (i) retrospectively to each prior reporting period presented — referred to as the full retrospective method or (ii) retrospectively with the cumulative effect of initially applying the standard recognized at the date of initial application in retained earnings — referred to as the modified retrospective method.

The Company is currently in process of assessing the impact that ASU 2014-09 will have on its financial statements and related disclosures. To date, the Company has derived its revenues from a single licensing agreement with Avanir (the AVP-825 License Agreement). The consideration the Company has received to date includes an upfront payment, research and development funding and development milestone payments. Additionally, the Company is eligible to receive sales milestone payments and royalties in the future once product sales exceed a certain threshold. The Company plans to analyze the performance obligations under the AVP-825 License Agreement, and the consideration received to date and that the Company may receive in the future, as part of its analysis of the impact of ASU 2014-09 on this arrangement.

Significant assessment and implementation matters to be addressed prior to adopting ASU 2014-09 include completing the Company's review of the AVP-825 License Agreement, as well as any other customer arrangements that the Company enters into prior to the adoption date, confirming its method of adoption, determining the impact the new accounting standard will have on its financial statements and related disclosures and updating, as needed, its business processes, systems and controls required to comply with ASU 2014-09 upon its effective date of January 1, 2018. The Company will make updates to its quarterly and year-end disclosures, with a focus on implementation status updates related to the impact ASU 2014-09 will have on its financial statements and related footnotes. The Company continues to monitor additional changes, modifications, clarifications or interpretations being undertaken by the FASB, which may impact its current conclusions.

The Company plans to adopt the new standard effective January 1, 2018 using the modified retrospective approach.

OptiNose, Inc.

Notes to Unaudited Interim Consolidated Financial Statements (Continued)

For the six months ended June 30, 2016 and 2017

(in thousands, except share and per share data)

4. Deposits and Other Assets

Deposits and other assets consisted of the following:

	December 31, 2016	June 30, 2017
Short-term		
Receivable due from the FDA	$ 2,038	$ —
Deposits on equipment	1,201	1,399
Other	255	409
Total short-term deposits and other assets	$ 3,494	$ 1,808
Long-term		
Deposits on equipment	$ 499	$ 336
Other	54	3
Total long-term deposits and other assets	553	339
	$ 4,047	$ 2,147

5. Property and Equipment

Property and equipment, net, consisted of:

	December 31, 2016	June 30, 2017
Computer equipment and software	$ 293	$ 374
Furniture and fixtures	121	121
Machinery and equipment	255	1,059
Leasehold improvements	28	28
	697	1,582
Less: accumulated depreciation	(374)	(440)
	$ 323	$ 1,142

Depreciation expense was $39 and $66 for six months ended June 30, 2016 and 2017, respectively.

OptiNose, Inc.

Notes to Unaudited Interim Consolidated Financial Statements (Continued)

For the six months ended June 30, 2016 and 2017

(in thousands, except share and per share data)

6. Accrued Expenses

Accrued expenses consisted of:

	December 31, 2016	June 30, 2017
Research and development expenses	$ 736	$ 655
Selling, general and administrative expenses	290	1,610
Bonus expense	1,390	1,240
Other	125	276
	$ 2,541	$ 3,781

7. AVP-825 License Agreement

In July 2013, the Company's wholly owned subsidiary, OptiNose AS, entered into the AVP-825 License Agreement with Avanir for the exclusive right to sell AVP-825 (now marketed as Onzetra® Xsail®), a product combining a low-dose powder form of sumatriptan with its technology platform, for the acute treatment of migraines in adults and any follow-on products under development that consist of a formulation that contains triptans as the sole active ingredient. Through December 31, 2016, under the terms of the AVP-825 License Agreement, the Company received aggregate cash payments of $70,000 in connection with the initial signing and upon the achievement of certain development milestones. Under the terms of the License Agreement, the Company is eligible to receive up to $50,000 upon the achievement of sales milestones as well as tiered low double-digit royalty payments on net sales in the US, Canada and Mexico after such cumulative sales exceed a certain threshold.

In conjunction with the AVP-825 License Agreement, the Company recognized $47,500 as licensing revenue during the six months ended June 30, 2016. The revenue was related to the achievement of the FDA approval milestone in January 2016. The Company did not recognize any licensing revenue during the six months ended June 30, 2017.

8. Convertible Notes

At December 31, 2016 and June 30, 2017, the Company's convertible notes payable, net, balance was as follows:

	December 31, 2016	June 30, 2017
Face amount	$ 15,000	$ —
Front end fees	(75)	—
Debt issuance costs	(44)	—
Back end fees	375	—
Convertible notes payable, net	$ 15,256	$ —

OptiNose, Inc.

Notes to Unaudited Interim Consolidated Financial Statements (Continued)

For the six months ended June 30, 2016 and 2017

(in thousands, except share and per share data)

8. Convertible Notes (Continued)

On September 30, 2015, the Company entered into a Senior Secured Convertible Note Purchase Agreement (Notes) with various existing shareholders. The Notes provided the Company with up to $30,000 in capital available in two separate tranches. The first tranche of $15,000 closed on September 30, 2015. The second tranche of up to $15,000 was available to the Company until March 30, 2017. The Notes bore an annual interest rate of 17% and were scheduled to mature on September 30, 2020 if not otherwise converted to Series C-2 shares. The Notes also bore front end fees of $450, which were paid at issuance, and back end fees of $450 plus interest that was to be paid at maturity. The Notes could be repaid at any time in $100 increments, did not contain any prepayment penalties and were secured by assets of OptiNose Inc. and OptiNose US, Inc. At the option of the majority purchaser of the Notes after March 30, 2017, or prior to March 30, 2017 if an event of default occurred or was continuing under the Notes, all note principal along with any accrued interest and back end fees thereon, could be converted into Series C-2 shares of preferred stock at a conversion price based upon a Company valuation equal to the lower of fair market value and $300,000.

The Company recorded $1,747 and $862 in interest expense during the six months ended June 30, 2016 and 2017, respectively, in conjunction with the Notes. Total coupon interest on the Notes and back end fees was $1,359 and $668 during the six months ended June 30, 2016 and 2017, respectively. The front end fees of $450 were recorded as debt discount at issuance and are being amortized to interest expense over the 18 month loan conversion period. During the six month periods ended June 30, 2016 and 2017, the Company recorded a total of $150 and $75 of interest expense, respectively, related to the front end fees. Additionally, back end fees of $450 are also being amortized to interest expense over the 18 month loan conversion period of which $150 and $75 has been recorded as interest expense and as an increase in the carrying amount of the Notes during the six months ended June 30, 2016 and 2017, respectively. The Company also incurred $265 in debt issuance costs during the year ended December 31, 2015 which are also being amortized to interest expense over the 18 month loan conversion period.

As of December 31, 2016, the fair value of the Notes was $21,814, which was estimated based on the as converted value of the Notes as of that date.

On March 24, 2017, in connection with the Series D Financing, the Notes and associated accrued interest and back end fees thereon totaling $19,527 converted into 687,474 shares of Series C-2 preferred stock at a per share conversion price of approximately $28.40.

OptiNose, Inc.

Notes to Unaudited Interim Consolidated Financial Statements (Continued)

For the six months ended June 30, 2016 and 2017

(in thousands, except share and per share data)

9. Redeemable Convertible Preferred Stock

Redeemable convertible preferred stock (Preferred Stock) consisted of the following:

Class	Authorized	Issued and Outstanding	Balance as of December 31, 2016	Balance as of June 30, 2017	Liquidation value at June 30, 2017
Series A	285,480	285,480	$ 5,381	$ 5,381	$ 5,381
Series B-1	35,680	35,680	673	673	673
Series B-2	782,600	782,600	14,760	14,760	14,760
Series C	4,115,344	4,115,344	105,738	110,840	110,993
Series C-1	1,656,410	1,656,410	41,621	43,517	43,517
Series C-2	687,474	687,474	—	19,951	19,951
Series D	1,369,863	1,117,578	—	37,296	37,496
	8,932,851	8,680,566	$ 168,173	$ 232,418	$ 232,771

During the six months ended June 30, 2017, the Company sold 1,117,578 shares of Series D Preferred Stock at a per share purchase price of $32.85, resulting in gross proceeds to the Company of $36,712 (the Series D Financing). In connection with the Series D Financing, the Company's existing convertible notes and associated accrued interest and back end fees thereon totaling $19,527 converted into 687,474 shares of Series C-2 Preferred Stock at a per share conversion price of approximately $28.40 (Note 8).

In conjunction with the Series D financing, the number of authorized shares of common stock was increased from 10,624,486 to 13,067,149 and the number of authorized shares of preferred stock was increased from 6,875,514 to 8,932,851, of which 1,369,863 shares were designated as Series D shares and 687,474 shares were designated as Series C-2 shares. Also, the redemption date for all classes of the Company's preferred stock was extended to March 24, 2020 and the terms upon which all classes of Preferred Stock would mandatorily convert into common stock in connection with an underwritten public offering were revised to align with the terms of the Series C-2 preferred stock.

Certain provisions of the outstanding Preferred Stock are as follows:

- *Conversion:* Each share of Series A, Series B, Series C, Series C-1 and Series C-2 Preferred Stock is convertible, at the option of the holder, into shares of common stock, on a one-to-one basis, subject to adjustment for certain events. The Series A, Series B, Series C, Series C-1 and Series C-2 Preferred Stock is also mandatorily convertible upon (i) the closing of a firm commitment underwritten public offering resulting in the listing of the Company's common stock on a nationally recognized stock exchange or securities market, or (ii) by the election of holders representing at least 75% of the issued and outstanding shares of Preferred Stock (other than Series D Preferred Stock).

  Each share of Series D Preferred Stock is convertible, at the option of the holder, into shares of common stock, on a one-to-one basis, subject to adjustment for certain events. The Series D Preferred Stock is also mandatorily convertible upon (i) the closing of a firm commitment underwritten public offering resulting in the listing of the Company's common stock on a nationally

OptiNose, Inc.

Notes to Unaudited Interim Consolidated Financial Statements (Continued)

For the six months ended June 30, 2016 and 2017

(in thousands, except share and per share data)

9. Redeemable Convertible Preferred Stock (Continued)

recognized stock exchange or securities market, or (ii) by the election of holders representing at least a majority of the issued and outstanding Series D Preferred Stock.

- *Dividends:* All classes of Preferred Stock participate in any dividends with common stockholders on an as-converted basis.

- *Liquidation:* In the event of the liquidation, dissolution, or winding up of the affairs of the Company (a Liquidity Event), the holders of Preferred Stock are entitled to receive a liquidation preference prior to any payment to the holders Common Stock (with the right of Series D, Series C-2, Series C-1 and Series C Preferred Stock ranking pari passu to each other and senior to the Series A, Series B-1 and Series B-2 Preferred Stock).

Each share of Series C, Series C-1, Series C-2 and Series D Preferred Stock carries an 8% minimum compounded annual return for purposes of calculating their respective liquidation preference. This minimum compounded annual return is treated as a deemed dividend under GAAP. The liquidation preference for each share of Series C, Series C-1, Series C-2 and Series D Preferred Stock is equal to $17.20, $21.13, $28.40 and $32.85 (plus any declared and unpaid dividends), respectively, plus the greater of (i) its minimum compounded annual return or (ii) participation on an as converted basis in any proceeds to be distributed to holders of preferred stock or common stock after payment in full of all preferential amounts. The liquidation preference for each share of Series A, Series B-1, and Series B-2 Preferred Stock is $18.85, $18.85, and $18.86 (plus any declared and unpaid dividends), respectively.

Additionally, the (i) sale or exclusive license by the Company of all or substantially all of the assets or intellectual property of the Company (whether by merger, exclusive license or otherwise), (ii) merger, consolidation, share exchange or other reorganization or combination in which the shares of capital stock of the Company immediately prior to such transaction represent, immediately after such transaction, securities representing less than 50% of the voting power of the Company or other entity surviving such transaction, or (iii) acquisition by a single person, entity or affiliated group of more than 50% of the Company's voting power, shall, unless otherwise the holders of (x) Preferred Stock representing a Supermajority and (y) a majority of Series D Stock elect otherwise, be regarded as a Liquidity Event.

- *Redemption:* At the election of a majority of the Series C and Series C-1, Series C-2 and Series D stockholders, all classes of Preferred Stock are redeemable at any time after March 24, 2020. Due to this redemption feature, the Company's Preferred Stock has been classified within temporary equity on the consolidated balance sheets at December 31, 2016 and June 30, 2017.

10. Stock-based Compensation

The Company issues stock-based awards pursuant to its 2010 Stock Incentive Plan, as amended (Plan). As of June 30, 2017, 1,637,356 shares of the Company's common stock were authorized to be issued under the Plan, and 99,505 shares were reserved for future issuance under the Plan. The amount, terms of grants, and exercisability provisions are determined and set by the Company's board of directors. The Company measures employee stock-based awards at grant-date fair value and records compensation expense on a straight-line basis over the vesting period of the award. Stock-based awards issued to nonemployees are revalued until the award vests. The Company recorded stock-based compensation expense in the

OptiNose, Inc.

Notes to Unaudited Interim Consolidated Financial Statements (Continued)

For the six months ended June 30, 2016 and 2017

(in thousands, except share and per share data)

10. Stock-based Compensation (Continued)

following expense categories of its accompanying consolidated statements of operations for the six months ended June 30, 2016 and 2017:

	2016	2017
Research and development	$ 298	$ 508
General and administrative	207	521
	$ 505	$ 1,029

Service-based stock options

Options issued under the Plan generally have a contractual life of up to 10 years and may be exercisable in cash or as otherwise determined by the board of directors. Vesting generally occurs over a period of not greater than four years. The following table summarizes the activity related to service-based stock option grants to employees and nonemployees for the six months ended June 30, 2017:

	Shares	Weighted average exercise price per share	Weighted average remaining contractual life
Outstanding at December 31, 2016	655,876	8.92	6.67
Granted	116,000	14.85	
Exercised	—		
Expired	(1,000)	16.39	
Forfeited	—		
Outstanding at June 30, 2017	770,876	$ 9.80	6.70
Exercisable at June 30, 2017	395,332	$ 5.33	4.19
Vested and expected to vest at June 30, 2017	770,876	$ 9.80	6.70

During the six months ended June 30, 2017, the Board approved the grant of time-based options to purchase 116,000 shares of common stock to employees that generally vest over four years. The options had an estimated weighted average grant date fair value of $9.81. The grant date fair value of each option grant was estimated at the time of grant using the Black-Scholes option-pricing model using the following weighted average assumptions:

Risk free interest rate	2.07%
Expected term (in years)	6.08
Expected volatility	73.93%
Annual dividend yield	0.00%
Fair value of common stock	$ 14.85

OptiNose, Inc.

Notes to Unaudited Interim Consolidated Financial Statements (Continued)

For the six months ended June 30, 2016 and 2017

(in thousands, except share and per share data)

10. Stock-based Compensation (Continued)

At June 30, 2017, the unrecognized compensation cost related to unvested service-based stock options expected to vest was $3,043. This unrecognized compensation will be recognized over an estimated weighted-average amortization period of 3.52 years.

Performance-based stock options

The Company has issued performance-based stock options under the Plan which generally have a ten-year life from the date of grant and may vest upon the achievement of certain milestones in connection with the Company's development programs. Additionally, the Company has issued options in excess of the fair market value of common shares on the issuance date that are only exercisable upon a change in control or upon or after an initial public offering. Compensation expense for performance-based stock options is only recognized when management determines it is probable that the awards will vest.

The following table summarizes the activity related to performance-based stock option grants to employees and nonemployees for the six months ended June 30, 2017:

	Shares	Weighted average exercise price per share	Weighted average remaining contractual life
Outstanding at December 31, 2016	752,025	$ 27.70	6.55
Granted	—		
Exercised	—		
Forfeited	—		
Outstanding at June 30, 2017	752,025	$ 27.70	6.06
Exercisable at June 30, 2017	264,019	$ 5.65	4.47

As of June 30, 2017, there was $2,700 of unrecognized compensation cost related to unvested performance-based stock options that will vest and be expensed when the occurrence of the performance condition is deemed probable.

Common stock warrants

The Company also has 654,624 common stock warrants outstanding with an exercise price of $23.56 per share that expire in 2020.

11. Related-party transactions

Debt and equity transactions

All of the Company's convertible debt (see Note 8) was with the Company's holders of convertible preferred stock.

12. Subsequent events

On September 18, 2017, the FDA approved the Company's NDA for XHANCE for the treatment of nasal polyps in adults.

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Shares

Common Stock

Preliminary Prospectus

Jefferies **Piper Jaffray** **BMO Capital Markets** **RBC Capital Markets**

, 2017

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth all costs and expenses, other than the underwriting discounts and commissions, payable by us in connection with the sale of the common stock being registered. All amounts shown are estimates except for the Securities and Exchange Commission, or SEC, registration fee, the Financial Industry Regulatory Authority, Inc., or FINRA, filing fee and The NASDAQ Global Market initial listing fee.

Item	Amount Paid or to be Paid
SEC registration fee	$ 11,590.00
FINRA filing fee	$ 15,500.00
NASDAQ Global Market initial listing fee	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent and registrar fees and expenses	*
Miscellaneous expenses	*
Total	$ *

* To be provided by amendment.

Item 14. Indemnification of Directors and Officers.

We are incorporated under the laws of the State of Delaware. Section 145 of the Delaware General Corporation Law provides that a Delaware corporation may indemnify any persons who are, or are threatened to be made, parties to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of such corporation), by reason of the fact that such person is or was an officer, director, employee or agent of such corporation, or is or was serving at the request of such person as an officer, director, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, provided that such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests and, with respect to any criminal action or proceeding, had no reasonable cause to believe that his or her conduct was illegal. A Delaware corporation may indemnify any persons who are, or are threatened to be made, a party to any threatened, pending or completed action or suit by or in the right of the corporation by reason of the fact that such person is or was a director, officer, employee or agent of such corporation, or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit provided that such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests except that no indemnification is permitted without judicial approval if the officer or director is adjudged to be liable to the corporation. Where an officer or director is successful on the merits or otherwise in the defense of any action referred to above, the corporation must indemnify him or her against the expenses which such officer or director has actually and reasonably incurred. Our fourth amended and restated certificate of incorporation and amended and restated bylaws, each of which will become effective

immediately following the closing of this offering, provide for the indemnification of our directors and officers to the fullest extent permitted under the Delaware General Corporation Law.

Section 102(b)(7) of the Delaware General Corporation Law permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duties as a director, except for liability for any:

- transaction from which the director derives an improper personal benefit;
- act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payment of dividends or redemption of shares; or
- breach of a director's duty of loyalty to the corporation or its stockholders.

Our fourth amended and restated certificate of incorporation, which will become effective immediately following the closing of this offering, includes such a provision. Expenses incurred by any officer or director in defending any such action, suit or proceeding in advance of its final disposition shall be paid by us upon delivery to us of an undertaking, by or on behalf of such director or officer, to repay all amounts so advanced if it shall ultimately be determined that such director or officer is not entitled to be indemnified by us.

As permitted by the Delaware General Corporation Law, we have entered into, or intend to enter into, indemnification agreements with our directors and executive officers. These agreements, among other things, will require us to indemnify each director and officer to the fullest extent permitted by law and advance expenses to each indemnitee in connection with any proceeding in which indemnification is available.

At present, there is no pending litigation or proceeding involving any of our directors or executive officers as to which indemnification is required or permitted, and we are not aware of any threatened litigation or proceeding that may result in a claim for indemnification.

We have an insurance policy covering our officers and directors with respect to certain liabilities, including liabilities arising under the Securities Act of 1933, as amended, or the Securities Act, or otherwise.

The form of underwriting agreement filed as Exhibit 1.1 to this registration statement provides for indemnification by the underwriters named in this registration statement of our executive officers, directors and us, and by us of the underwriters named in this registration statement, for certain liabilities, including liabilities arising under the Securities Act, in connection with matters specifically provided in writing for inclusion in this registration statement.

Item 15. Recent Sales of Unregistered Securities.

Set forth below is information regarding securities issued by us since January 1, 2014 that were not registered under the Securities Act. Also included is the consideration, if any, received by us for such securities, and information relating to the section of the Securities Act, or rule of the SEC, under which exemption from registration was claimed.

(a) Issuances of Capital Stock

1. In July 2014, we issued and sold an aggregate of 1,419,781 shares of our Series C-1 Preferred Stock to certain of our existing investors and members of our management team and board of directors at a purchase price of $21.13 per share, for aggregate consideration of $30.0 million.

2. In July 2015, we issued and sold to our existing Series C-1 Preferred Stock holders an additional 236,629 shares of Series C-1 Preferred Stock at a purchase price of $21.13 per share, for aggregate consideration of $5.0 million.

3. In March 2017, we issued and sold an aggregate of 1,065,451 shares of our Series D Preferred Stock to certain new and existing investors at a purchase price of $32.85 per share, for aggregate consideration of $35.0 million.

4. In April 2017 and May 2017, we issued and sold to certain of our existing stockholders an additional 52,127 shares of Series D Preferred Stock at a purchase price of $32.85 per share, for aggregate consideration of $1.7 million.

(b) Convertible Notes

1. In September 2015, we issued and sold convertible notes in the aggregate principal amount of $15.0 million. In March 2017, concurrently with our Series D Preferred Stock financing, the notes were converted into an aggregate of 687,474 shares of our Series C-2 Preferred Stock at a conversion price of approximately $28.40 per share.

(c) Stock Option Grants

1. On March 11, 2014, we granted stock options to purchase a total of 98,222 shares of common stock at an exercise price of $8.80 per share to 11 employees pursuant to our 2010 Stock Incentive Plan, as amended, or the 2010 Plan.

2. On March 11, 2014, we granted stock options to purchase a total of 52,625 shares of common stock at an exercise price of $8.80 per share to two executive officers pursuant to our 2010 Plan.

3. On April 7, 2014, we granted stock options to purchase a total of 300,000 shares of common stock at an exercise price of $47.10 per share to two executive officers pursuant to our 2010 Plan.

4. On April 21, 2014, we granted a stock option to purchase a total of 7,500 shares of common stock at an exercise price of $8.80 per share to one employee pursuant to our 2010 Plan.

5. On April 21, 2014, we granted a stock option to purchase 12,500 shares of common stock at an exercise price of $8.80 per share to one executive officer pursuant to our 2010 Plan.

6. On April 21, 2014, we granted a stock option to purchase 100,000 shares of common stock at an exercise price of $47.10 per share to one executive officer pursuant to our 2010 Plan.

7. On July 30, 2014, we granted a stock option to purchase 5,000 shares of common stock at an exercise price of $8.80 per share to one employee pursuant to our 2010 Plan.

8. On December 20, 2016, we granted stock options to purchase a total of 141,000 shares of common stock at an exercise price of $14.85 per share to eight employees pursuant to our 2010 Plan.

9. On December 20, 2016, we granted stock options to purchase a total of 97,500 shares of our common stock at an exercise price of $14.85 to two executive officers and two directors pursuant to our 2010 Plan.

10. On December 20, 2016, we granted a stock option to purchase 100,000 shares of common stock at an exercise price of $47.10 per share to one executive officer pursuant to our 2010 Plan.

11. On January 23, 2017, we granted a stock option to purchase a total of 55,000 shares of common stock at an exercise price of $14.85 per share to one executive officer pursuant to our 2010 Plan.

12. On January 30, 2017, we granted stock options to purchase a total of 50,000 shares of common stock at an exercise price of $14.85 per share to one executive officer pursuant to our 2010 Plan.

13. On February 13, 2017, we granted stock options to purchase a total of 7,000 shares of common stock at an exercise price of $14.85 per share to two employees pursuant to our 2010 Plan.

14. On February 20, 2017, we granted a stock option to purchase 2,000 shares of common stock at an exercise price of $14.85 per share to one employee pursuant to our 2010 Plan.

15. On February 27, 2017, we granted a stock option to purchase 2,000 shares of common stock at an exercise price of $14.85 per share to one employee pursuant to our 2010 Plan.

16. On August 7, 2017, we granted stock options to purchase a total of 55,500 shares of common stock at an exercise price of $20.95 per share to nine employees pursuant to our 2010 Plan.

17. On September 12, 2017, we granted a stock option to purchase 10,000 shares of common stock at an exercise price of $20.95 per share to one employee pursuant to our 2010 Plan.

The offers, sales and issuances of the securities described in paragraphs (a) and (b) above were exempt from registration under the Securities Act in reliance on Regulation D of the Securities Act.

With respect to the shares of Series C-2 Preferred Stock issued upon conversion of the convertible notes in March 2017 described in paragraph (b), the issuance of such shares was exempt from registration under Section 3(a)(9) of the Securities Act.

The grants of stock described in paragraph (c) above to our executive officers and directors were exempt from registration under Section 4(a)(2) of the Securities Act as transactions not involving any public offering. The remaining grants of stock options described in paragraph (c) above were exempt from registration under the Securities Act in reliance on Rule 701 as offers and sales of securities under written compensatory benefit plans and contracts relating to compensation in compliance with Rule 701. Each of the recipients of securities in any transaction exempt from registration either received or had adequate access, through employment, business or other relationships, to information about us.

All purchasers of securities in transactions exempt from registration pursuant to Regulation D described above represented to us in connection with their purchase that they were accredited investors, as defined in Rule 501 under the Securities Act, and were acquiring the securities for investment purposes only and not with a view to, or for sale in connection with, any distribution thereof and that they could bear the risks of the investment and could hold the securities for an indefinite period of time. The purchasers received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration statement or an available exemption from the registration requirements of the Securities Act.

All of the foregoing securities are deemed restricted securities for purposes of the Securities Act. The certificates representing the issued securities described in this Item 15 included appropriate legends setting forth that the applicable securities have not been registered and reciting the applicable restrictions on transfer. There were no underwriters employed in connection with any of the transactions set forth in this Item 15.

Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits

The list of exhibits is set forth under "Index to Exhibits" at the end of this registration statement and is incorporated by reference herein.

(b) Financial Statement Schedules

No financial statement schedules are provided because the information called for is not required or is shown either in the financial statements or the notes thereto.

Item 17. Undertakings.

The undersigned registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

The undersigned Registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b) (1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

INDEX TO EXHIBITS

Exhibit Number	Exhibit Description
1.1#	Form of Underwriting Agreement.
2.1	Exchange Agreement, dated as of June 7, 2010, by and among the Registrant, OptiNose AS and the other signatories thereto (the Registrant hereby agrees to furnish supplementally a copy of any omitted schedules to the SEC upon request).
3.1	Third Amended and Restated Certificate of Incorporation, as currently in effect.
3.2	By-Laws, as currently in effect.
3.3	Amendment No. 1 to the By-Laws, as currently in effect, dated March 24, 2017.
3.4#	Form of Fourth Amended and Restated Certificate of Incorporation, to be effective immediately following the closing of this offering.
3.5#	Form of Amended and Restated Bylaws, to be in effect immediately following closing of this offering.
4.1#	Form of Common Stock Certificate.
4.2	Second Amended and Restated Registration Rights Agreement, dated March 24, 2017, by and among the Registrant and certain of its stockholders.
4.3	Second Amended and Restated Shareholders' Agreement, dated March 24, 2017, by and among the Registrant and certain of its stockholders.
4.4	Form of Warrant issued by the Registrant on June 7, 2010.
5.1#	Opinion of Hogan Lovells US LLP.
10.1#+	Form of Indemnification Agreement.
10.2+	Employment Agreement, dated as of May 27, 2010, by and between the Registrant and Peter K. Miller.
10.3+	Letter Agreement, dated as of June 18, 2010, by and between the Registrant and Ramy A. Mahmoud.
10.4+	Letter Agreement, dated as of September 15, 2016, by and between OptiNose US, Inc. and Thomas E. Gibbs.
10.5+	Letter Agreement, dated as of January 13, 2017, by and between OptiNose US, Inc. and Keith A. Goldan.
10.6+	Letter Agreement, dated as of January 13, 2017, by and between OptiNose US, Inc. and Michael F. Marino.
10.7#+	Form of Amended and Restated 2010 Stock Incentive Plan.
10.8#+	Form of Non-Qualified Stock Option Agreement Granted Under the 2010 Stock Incentive Plan (Relating to Success Pool Grants).
10.9#+	Form of Non-Qualified Stock Option Agreement Granted Under the 2010 Stock Incentive Plan (Relating to Option Pool Grants).
10.10#+	Form of Non-Qualified Stock Option Agreement Granted Under the 2010 Stock Incentive Plan.

Exhibit Number	Exhibit Description
10.11†	License Agreement, dated as of July 1, 2013, by and between OptiNose AS and Avanir Pharmaceuticals, Inc.
10.12†	First Amendment of License Agreement, dated as of April 25, 2014, by and between OptiNose US, Inc. and Avanir Pharmaceuticals, Inc.
10.13†	Amendment to License Agreement, dated as of August 6, 2015, by and between OptiNose AS and Avanir Pharmaceuticals, Inc.
10.14†	Supply Agreement, dated July 1, 2017, by and between Hovione Inter Ltd and OptiNose US, Inc., OptiNose UK, Ltd and OptiNose AS.
10.15†	Manufacture and Supply Agreement, dated as of August 18, 2017, by and among OptiNose US, Inc., OptiNose UK Ltd. and OptiNose AS and Contract Pharmaceuticals Limited Canada.
10.16†	Manufacturing Services Agreement, dated as of August 31, 2017, by and among OptiNose US, Inc., OptiNose UK Ltd. and OptiNose AS and Ximedica, LLC.
10.17#+	2017 Employee Stock Purchase Plan.
16.1	Letter of PricewaterhouseCoopers LLP as to change in accountant, dated June 23, 2017.
21.1	List of Subsidiaries of the Registrant.
23.1	Consent of Ernst & Young LLP, independent registered public accounting firm.
23.2#	Consent of Hogan Lovells US LLP (included in Exhibit 5.1).
24.1	Power of Attorney (included on signature page).

To be filed by amendment.

† Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment pursuant to Rule 406 under the Securities Act of 1933.

+ Indicates management contract or compensatory plan.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the Borough of Yardley, Commonwealth of Pennsylvania, on the 18th day of September, 2017.

OPTINOSE, INC.

By: /s/ PETER K. MILLER

Name: Peter K. Miller
Title: *Chief Executive Officer*

POWER OF ATTORNEY

KNOW ALL BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Peter K. Miller and Keith A. Goldan, as his true and lawful attorney-in-fact and agent, with the full power of substitution, for him and in his name, place or stead, in any and all capacities, to sign any and all amendments to this registration statement (including post-effective amendments), and to sign any registration statement for the same offering covered by this registration statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act, and all post-effective amendments thereto, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ PETER K. MILLER Peter K. Miller	Chief Executive Officer and Director (Principal Executive Officer)	September 18, 2017
/s/ KEITH A. GOLDAN Keith A. Goldan	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	September 18, 2017
/s/ LARRY G. PICKERING Larry G. Pickering	Chairman of the Board of Directors	September 18, 2017
/s/ SRIRAM VENKATARAMAN Sriram Venkataraman	Director	September 18, 2017

Signature	Title	Date
/s/ WILLIAM F. DOYLE William F. Doyle	Director	September 18, 2017
/s/ KLAAS DE BOER Klaas de Boer	Director	September 18, 2017
/s/ PER GISLE DJUPESLAND Per Gisle Djupesland	Director	September 18, 2017
/s/ PATRICK O'NEILL Patrick O'Neill	Director	September 18, 2017
/s/ JOSHUA A. TAMAROFF Joshua A. Tamaroff	Director	September 18, 2017

Exhibit 2.1

OPTINOSE, INC.,

OPTINOSE AS,

-and-

CERTAIN SECURITYHOLDERS OF OPTINOSE AS

EXCHANGE AGREEMENT
for the acquisition of all or certain of the share capital and all convertible securities of
OPTINOSE AS

EXCHANGE AGREEMENT

This EXCHANGE AGREEMENT (this "**Agreement**") is entered into as of the later of the 7th day of June 2010, and the date the last signature is executed on the signature pages hereto, by and among:

(1) OPTINOSE, INC., a Delaware corporation, with its registered address at 1209 Orange Street, in the City of Wilmington, County of New Castle, State of Delaware ("**DELCO**");

(2) OPTINOSE AS, a private limited company duly organized under the laws of Norway, registration number 982483131, having its registered office at the Oslo Innovation Centre, Gaustadalléen 21, 0349 Oslo, Norway ("**NORCO**"); and

(3) The (i) NORCO shareholders, (ii) NORCO noteholders and (iii) NORCO option holders, each of whose names and addresses are set out in Schedule 1 hereto, which parties are each referred to herein as a "**Securityholder**" and together the "**Securityholders**".

WHEREAS, the Securityholders together are the legal and beneficial owners of (i) up to 100% of the issued share capital of NORCO, as is detailed in column 2 of Schedule 1 hereto (the "**NORCO Shares**"), (ii) 100% of the convertible notes issued by NORCO pursuant to that certain Convertible Loan Agreement dated as of October 9, 2009 by and among NORCO and the lenders named therein, after giving effect to the waiver by such lenders of their rights to receive interest on the convertible notes after May 26, 2010 and until June 11, 2010, subject to the terms and conditions of that certain Waiver Agreement, dated on or about the date hereof (the "**Interest Waiver**"), and as detailed in column 3 of Schedule 1 hereto (the "**NORCO Notes**"), and (iii) 100% of the outstanding options to purchase shares of capital stock of NORCO pursuant to that certain Subscription Agreement (the "**2005 Subscription Agreement**") dated as of December 20, 2005 by and among NORCO and the parties named therein (the "**NORCO Options**", and collectively with the NORCO Shares and NORCO Notes, the "**NORCO Securities**"), as is detailed in column 4 of Schedule 1 hereto;

WHEREAS, DELCO has been newly incorporated prior to the execution and delivery of this Agreement, and the Board of Directors of DELCO has determined that it is in the best interests of DELCO for the NORCO Shares to be owned by DELCO, the NORCO Notes to be exchanged for capital stock of DELCO, for the NORCO Options to be exchanged for warrants exercisable for shares of DELCO, and for the Securityholders to acquire shares of capital stock, cash, options or warrants, as applicable, of DELCO in exchange for such NORCO Securities;

WHEREAS, simultaneous with the execution of this Agreement, NORCO, DELCO and former or current NORCO employees or their affiliates holding options to purchase NORCO common stock ("**Employee NORCO Options**") will execute separate exchange agreements (the "**Employee Option Exchanges**") pursuant to which the Employee NORCO Options will be exchanged for options to purchase common stock of DELCO in accordance with DELCO's 2010 Stock Incentive Plan;

WHEREAS, the Securityholders desire to exchange their NORCO Shares for shares of capital stock of DELCO and certain payments in cash, their NORCO Notes for capital stock of DELCO, and their NORCO Options for warrants to purchase shares of capital stock of DELCO, in each case on the terms and conditions set out in this Agreement (the "**Exchange**");

WHEREAS, it is intended by the parties hereto that the Exchange occur immediately prior to the Initial Closing as is contemplated by that certain Series C Subscription Agreement (the "**Stock Purchase Agreement**"), dated as of May 27, 2010, by and between DELCO and the investors named therein (the "**Investors**"), and the parties hereto acknowledge that the consummation of the Exchange constitutes a condition precedent for the Initial Closing under the Stock Purchase Agreement; and

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WHEREAS, (i) the Exchange and Employee Option Exchanges would not be effected but for the Investor's commitment to purchase shares of DELCO's Series C Preferred Stock in the Stock Purchase Agreement (the "**Stock Purchase**"), (ii) the Exchange will be completed immediately prior to, in anticipation of, and in reliance upon the consummation of the Stock Purchase and Initial Closing under the Stock Purchase Agreement, and (iii) the parties intend that the Exchange, Employee Option Exchanges and Stock Purchase constitute one integrated series of transfers entitled to nonrecognition treatment for U.S. federal income tax purposes pursuant to Section 351 of the Internal Revenue Code of 1986, as amended (the "**Code**").

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

1. CAPITALIZATION

Immediately following the Exchange, and the investment contemplated by the Stock Purchase Agreement, the capitalization of DELCO will be as set forth on Schedule 2 hereto, and NORCO will be a wholly-owned subsidiary of DELCO.

2. FORMATION OF DELCO

The Amended and Restated Certificate of Incorporation of DELCO is in the form of Exhibit A attached hereto.

3. EXCHANGE OF NORCO SECURITIES FOR STOCK AND OPTIONS OF DELCO

3.1 At the "**Closing**" to take place after the execution of this Agreement and immediately prior to the Initial Closing under the Stock Purchase Agreement (upon satisfaction of the closing conditions thereunder other than execution and delivery of this Agreement) at the offices of Hogan Lovells LLP, Columbia Square, 555 Thirteenth Street, N.W., Washington, DC 20004-1109, United States (or at such other place or remotely as the parties may agree), and subject to the execution and closing of the transactions contemplated by the Stock Purchase Agreement, each Securityholder hereby transfers:

3.1.1 all of the NORCO Shares held by such Securityholder as set forth in column 2 of Schedule 1 hereto in exchange for (i) the number, class and series of shares of DELCO (the "**Stock Consideration Shares**") as set forth in column 5 of Schedule 1 hereto, and (ii) the right to receive a cash payment at Closing in the amount set forth in column 5 of Schedule 1, if any; provided that such cash payment shall consist of only the amount set forth in column 5 of Schedule 1(1) and will not be increased or modified for any reason (including such Securityholder's actual tax liability with respect to the Exchange);

3.1.2 all of the NORCO Notes (as amended pursuant to Section 3.3 below and after giving effect to the Interest Waiver) held by such Securityholder as set forth in column 3 of Schedule 1 hereto as converted into and in exchange for the number, class and series of shares of DELCO (the

(1) OptiNose's tax accountants have advised that they believe that the Norwegian tax payable on the Exchange will equal twenty eight percent (28%) of three percent (3%) of estimated capital gain of such shareholder on their shares from their original date of purchase, or 0.84% of such capital gain. DELCO has agreed that each Norwegian shareholder's shares included in the Exchange will be exchanged for (i) corresponding shares in the New US Company, and (ii) a payment in cash that may approximate such tax liability. This payment is not a tax indemnity — no additional amounts beyond that set forth in Schedule 1 would be paid in the Exchange. Payment of taxes is the responsibility of each Securityholder, and each Securityholder's actual tax liability may differ from this amount.

"**Note Consideration Shares**," and together with the Stock Consideration Shares, the "**Consideration Shares**") as set forth in column 6 of Schedule 1 hereto; and

3.1.3 all of the NORCO Options held by such Securityholder as set forth in column 4 of Schedule 1 hereto in exchange for a warrant to purchase the number and class of shares of DELCO substantially in the form of Exhibit B attached hereto (the "**Consideration Options**") as set forth in column 7 of Schedule 1 hereto.

3.2 At the Closing, and in connection with the transfer described in Section 3.1 hereof, each Securityholder shall complete, execute a transfer notice (the "**Transfer Notice**") attached as Exhibit C to DELCO to be held by DELCO in escrow. Each Securityholder will promptly send, with a copy to the DELCO, the Transfer Note to its bank at which the Securityholder maintains its VPS account (the "**VPS Bank**"). If any Securityholder fails to promptly send such Transfer Note, such Securityholder hereby authorizes the Purchaser to send such Transfer Note to the Securityholder's VPS Bank. Upon receipt of a confirmation from each Securityholder's VPS Bank that the NORCO Shares have been transferred to DELCO in compliance with the Transfer Note and this Agreement, DELCO shall promptly deliver or cause to be delivered to each Securityholder share certificates representing the Consideration Shares, and the warrants representing the Consideration Options, that such Securityholder is entitled to pursuant to the Exchange.

3.3 The full and unrestricted title to the NORCO Shares shall pass from each Securityholder to DELCO at the Closing, the conversion of the NORCO Notes into Consideration Shares shall be deemed effective at the Closing, with such NORCO Notes being hereby amended to provide for their conversion, pursuant to such amended terms, into Consideration Shares as provided hereunder, and the exchange of NORCO Options for Consideration Options shall be deemed effective at the Closing, with such NORCO Options being cancelled and becoming void and of no effect as of the Closing.

3.3.1 The full and unrestricted title to the Consideration Shares and Consideration Options shall pass to each Securityholder, as set forth in column 6 and column 7 of Schedule 1, at the Closing and there are no issued outstanding shares of NORCO that have not yet been registered with the Norwegian Company Register.

3.3.2 The parties acknowledge that prior to the date hereof, TKWD Ventures LLC held 12,055 shares of NORCO Series A-1 Convertible Preferred Stock and 9,644 NORCO Options for the benefit of its affiliate, TKWD/OptiNose LLC. Pursuant to the Exchange, the Consideration Shares and Consideration Options for these interests shall be issued directly to TKWD/OptiNose LLC.

3.3.3 The parties acknowledge and agree that TKWD Ventures LLC has agreed to transfer, for sufficient consideration duly received, effective at the Closing: (i) to Ikos Invest AS Consideration Options for 20,000 shares of DELCO Common Stock, and (ii) to Entrepreneurs Fund Consideration Options for 40,000 shares of DELCO Common Stock. Schedule 1 reflects the completion of this transfer, and each signatory hereto hereby consents to, and waives any restrictions that may impede, such transfer (including any tag-along rights that such signatory may have under any of the Prior Shareholders' Agreements).

4. REPRESENTATIONS AND WARRANTIES AND WAIVERS

4.1 Each of the parties represents and warrants to the other that it has the full power and authority to enter into this Agreement.

4.2 Each Securityholder severally, and not jointly, represents and warrants to DELCO that:

4.2.1 Such Securityholder is the owner of the NORCO Securities set forth opposite such Securityholder's respective name in the Schedule 1 hereto and, except for such NORCO Securities as are identified on the Schedule 1 hereto, such Securityholder does not own any capital stock of NORCO or have the right to purchase or acquire any capital stock of NORCO through any subscription, warrant, option, convertible security or other right (contingent or otherwise) other than (i) Employee NORCO Options or (ii) pre-emptive rights, if any, under the Prior Shareholders' Agreements (as defined below), the Norwegian Private Limited Companies Act of 1997 or otherwise, all of which pre-emptive rights are being waived hereunder;

4.2.2 Such Securityholder will at the Closing have the right, power and authority to sell and transfer or procure the transfer of all of the NORCO Securities held by such Securityholder to DELCO in accordance with the provisions of this Agreement, free and clear of any liens, claims or other encumbrances, except for the pre-emptive rights contained in NORCO's Articles of Association or provided by the Norwegian Private Limited Companies Act of 1997 or otherwise, all of which rights are waived for the Exchange pursuant to Section 4.3 below, and has taken all necessary action required for the due authorization, execution, delivery and performance by such Securityholder of this Agreement;

4.2.3 The execution, delivery and performance of this Agreement will not violate any agreement, contract or other instrument to which such Securityholder is a party or is bound, other than any Prior Shareholders' Agreements (as defined below), which are terminated hereunder, and any such violation of which is hereby waived; and

4.2.4 Execution and performance of the provisions of this Agreement will effect the transfer of good and marketable title to and the full legal and beneficial ownership in the NORCO Securities held by such Securityholder, free and clear of any liens, claims or other encumbrances, except for the pre-emptive rights contained in NORCO's Articles of Association or provided by the Norwegian Private Limited Companies Act of 1997 or otherwise, all of which rights are waived for the Exchange pursuant to Section 4.3 below.

4.3 The Board of Directors of NORCO has approved the Exchange, and NORCO and each Securityholder hereby waive all restrictions on transfer (including pre-emptive rights, rights of first refusal, co-sale rights and similar restrictions and related notice periods), anti-dilution rights and any procedural requirements not specifically provided for herein which may exist in relation to the sale or exchange of the NORCO Securities contemplated hereby or the Stock Purchase Agreement, in each case under the articles of association of NORCO, the Norwegian Private Limited Companies Act of 1997, any subscription, shareholders or investment agreement relating to NORCO, DELCO or otherwise.

4.4 DELCO hereby represents and warrants to each Securityholder that:

4.4.1 DELCO is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware and has full corporate power and authority to conduct its business as now conducted and as currently proposed to be conducted by it and to enter into and perform this Agreement and all other agreements required to be executed by DELCO at or prior to the Closing and to carry out the transactions contemplated by this Agreement. DELCO has furnished to the

Securityholders complete and accurate copies of its Certificate and Bylaws, each as amended to date and currently in effect. DELCO has at all times complied in all material respects with the provisions of its Certificate and Bylaws and is not in material default under, or in material violation of, any such provision. DELCO has no outstanding liabilities or commitments and is not party to any agreements or contracts other than those being executed and delivered in connection with the Exchange and the Stock Purchase.

4.4.2 The authorized capital stock of DELCO consists of 10,896,056 shares, of which (i) 6,868,813 shares have been designated as Common Stock, $0.001 par value per share, and (ii) 4,027,243 shares have been designated as Preferred Stock, $0.001 par value per share, 285,480 of which have been designated as Series A Preferred Stock, 35,680 of which have been designated as Series B-1 Preferred Stock, 782,600 of which have been designated as Series B-2 Preferred Stock and2,923,483 of which have been designated as Series C Preferred Stock. One share of Common Stock of DELCO is currently outstanding and is owned by NORCO, and DELCO and NORCO hereby agree that effective as of the Closing under this Agreement, such share is cancelled and no longer outstanding.

4.4.3 The issuance, sale and delivery of the Consideration Shares and the Consideration Options in accordance with this Agreement have been duly authorized by all necessary corporate action on the part of DELCO, and all such shares have been duly reserved for issuance. The Consideration Shares when so issued, sold and delivered against payment therefor (by way of exchange of the NORCO Shares and/or NORCO Notes) in accordance with the provisions of this Agreement and the shares of capital stock issuable upon exercise of the Consideration Options when issued upon such exercise, will be duly and validly issued, fully paid and nonassessable, and free and clear of any lien or encumbrance other than as provided under the New Shareholders Agreements (as defined below). The issuance of the Consideration Shares is not and will not be subject to any pre-emptive rights or rights of first refusal that have not been properly waived or complied with.

4.4.4 The execution, delivery and performance by DELCO of this Agreement, and the consummation by DELCO of the transactions contemplated hereby, have been duly authorized by all necessary corporate action. This Agreement has been duly executed and delivered by DELCO and constitutes a valid and binding obligation of DELCO enforceable in accordance with its terms, subject, as to enforcement of remedies, to applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting generally the enforcement of creditors' rights and subject to a court's discretionary authority with respect to the granting of a decree ordering specific performance or other equitable remedies.

5. INVESTMENT WARRANTIES

5.1 Each Securityholder, severally, and not jointly, represents and warrants that such Securityholder is either (i) an "accredited investor" as such term is defined in Regulation D promulgated under the U.S. Securities Act of 1933 (the "**Securities Act**") or (ii) located outside the United States and is not a "U.S. Person" as such term is defined in Regulation S under the Securities Act ("**Regulation S**") and that such Securityholder is obtaining the Consideration Shares and/or the Consideration Options in an "offshore transaction" (as such term is defined in Regulation S under the Securities Act) outside the United States, and that,

to his knowledge, no "directed selling efforts" (as such term is defined in Regulation S) in the United States have been made by NORCO in connection with his acquisition of Consideration Shares and/or the Consideration Options. Each Securityholder that is located outside the United States has so indicated on the signature page hereto.

5.2 Each Securityholder severally, and not jointly, represents and warrants that it is acquiring the Consideration Shares and/or the Consideration Options for its own account for investment and not with a view to, or for sale in connection with, any distribution thereof, nor with any present intention of distributing or selling the same; and such Securityholder has no present or contemplated agreement, undertaking, arrangement, obligation, indebtedness or commitment providing for the disposition thereof.

5.3 Each Securityholder severally, and not jointly, represents and warrants that (i) it is familiar with NORCO and DELCO, their business and personnel; (ii) the officers of NORCO and DELCO have made available to such Securityholder any and all information which such Securityholder has requested and have answered to such Securityholder's satisfaction all inquiries made by such Securityholder with respect to DELCO and the Exchange; and (iii) such Securityholder has sufficient knowledge and experience in finance and business that such Securityholder is capable of evaluating the risks and merits of the investment in DELCO contemplated hereby and such Securityholder is able financially to bear the risks thereof. Securityholder understands and acknowledges that the value of the Consideration Shares may be worth more or less than the aggregate consideration being delivered by Securityholder in connection with the transactions contemplated by this Agreement.

5.4 Each Securityholder acknowledges and understands that (i) neither the Consideration Shares nor the Consideration Options have been registered under the Securities Act and each are "restricted securities" within the meaning of Rule 144 under the Securities Act; (ii) neither the Consideration Shares nor the Consideration Options can be sold, transferred or otherwise disposed of except in accordance with Regulation S, if applicable, pursuant to registration under the Securities Act, or pursuant to an available exemption from registration under the United States securities laws and other applicable securities laws, and hedging transactions involving the Consideration Shares and/or the Consideration Options may not be conducted unless in compliance with the Securities Act and any other applicable securities law; (iii) in any event, the exemption from registration under Rule 144 will not be available until the requisite holding period has been satisfied and even then will not be available unless a public market then exists for the Consideration Shares and adequate information concerning DELCO is then available to the public, and other terms and conditions of Rule 144 are complied with; and (iv) there is now no registration statement on file with the U.S. Securities and Exchange Commission with respect to any stock of DELCO and DELCO has no obligation or current intention to register the Consideration Shares or the Consideration Options (or any securities issuable upon exercise thereof) under the Securities Act. Neither the Consideration Shares nor the Consideration Options shall be sold or transferred unless either (a) they first shall have been registered under the Securities Act and any other applicable securities law, or (b) DELCO first shall have been furnished with an opinion of legal counsel, if requested by DELCO, reasonably satisfactory to DELCO, to the effect that such sale or transfer is exempt from the registration requirements of the Securities Act and any other applicable securities law.

5.5 All certificates representing Consideration Shares shall have affixed thereto legends in substantially the following form with such changes as the Company determines advisable or necessary to qualify for notice, registration and other exemptions under "blue sky" laws:

THESE SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR THE SECURITIES LAWS OF ANY STATE AND MAY NOT BE TRANSFERRED WITHOUT REGISTRATION UNDER THE SECURITIES ACT OR STATE SECURITIES LAWS OR AN OPINION OF COUNSEL, SATISFACTORY TO THE COMPANY, THAT SUCH REGISTRATION IS NOT REQUIRED.

THE SECURITIES REPRESENTED BY THIS CERTIFICATE ARE ALSO SUBJECT TO THE TERMS AND CONDITIONS OF A SHAREHOLDERS AGREEMENT BY AND AMONG THE COMPANY AND THE HOLDERS SPECIFIED THEREIN, A COPY OF WHICH AGREEMENT IS ON FILE AT THE PRINCIPAL OFFICE OF THE COMPANY. THE SALE, TRANSFER OR OTHER DISPOSITION OF THE SECURITIES IS SUBJECT TO THE TERMS OF SUCH AGREEMENT AND THE SECURITIES ARE TRANSFERABLE ONLY UPON PROOF OF COMPLIANCE THEREWITH.

5.6 The representations and warranties of each Securityholder contained in this Agreement are the sole and exclusive representations and warranties made by each party in connection with the Exchange. No party to the Exchange has relied on any other representations and warranties of any of the other parties hereto except as expressly set forth in this Agreement.

6. TERMINATION OF CERTAIN AGREEMENTS; WAIVERS

Simultaneously with the execution and delivery of this Agreement, each party to this Agreement is executing and delivering that certain Shareholders' Agreement, dated as of the date of this Agreement, by and among DELCO, the Investors, each of the holders of NORCO Shares and the other parties thereto, and certain parties are executing and delivering that certain Registration Rights Agreement, dated as of the date of this Agreement, by and among DELCO and the parties named therein (collectively, the "**New Shareholders Agreements**"). Each party to the Convertible Loan Agreement, dated as of October 9, 2009, by and among NORCO and the other parties thereto, Shareholders' Agreement dated December 20, 2005, as amended, the Registration Rights Agreement dated December 20, 2005, as amended, and any other agreement regulating the holding of or right to purchase or dispose of the NORCO Securities (collectively, the "**Prior Shareholders' Agreements**"), hereby confirms that each of such Prior Shareholders' Agreement is hereby terminated in accordance with its terms and is of no further force or effect and furthermore,

each such party irrevocably waives all rights and claims under the Prior Shareholders Agreements and with respect to the NORCO Securities (other than the right to receive the Consideration Shares and Consideration Options, as applicable, in exchange for such NORCO Securities hereunder), in each case with immediate effect as of the Closing. Each party to the 2005 Subscription Agreement hereby confirms that, upon exchange of the NORCO Options for the Consideration Options at the Closing, the NORCO Options set forth in the 2005 Subscription Agreement shall be of no further force and effect. To the extent required by applicable law or any agreement between the Securityholder and NORCO, each party to this Agreement hereby approves and consents to the Exchange, the Option Exchanges, the Stock Purchase and any related transactions described herein or therein.

7. MISCELLANEOUS.

7.1 **Further Assurances.** Each party hereto agrees to execute such additional instruments and take such additional acts as may be reasonably necessary to effectuate the provisions of this Agreement and the transactions contemplated hereby.

7.2 **Tax Treatment**. None of the parties hereto nor any of their respective affiliates shall take or cause to be taken any action (including without limitation agreeing to or participating in any transaction or entering into any other agreement) that would result in the transactions occurring pursuant to this Agreement and the Stock Purchase Agreement and the Option Exchanges failing to qualify as an integrated series of transfers entitled to nonrecognition treatment for U.S. federal income tax purposes pursuant to Section 351 of the Code. Each of the parties shall use all reasonable efforts, and shall cause their respective affiliates to use all reasonable efforts, to cause the transactions occurring pursuant to this Agreement, the Option Exchanges and the Stock Purchase Agreement to qualify as an integrated series of transfers entitled to nonrecognition treatment for U.S. federal income tax purposes pursuant to Section 351 of the Code. Such efforts shall include, without limitation, compliance with Treasury Regulation Section 1.351-3. Each of the parties hereto that is required to file a U.S. federal income tax return for 2010 or any subsequent year shall not take any position on such tax return or tax returns (or on any state or local income tax return) that is inconsistent with the treatment of the transactions occurring pursuant to this Agreement, the Employee Option Agreements and the Stock Purchase Agreement as an integrated series of transfers entitled to nonrecognition treatment for U.S. federal income tax purposes pursuant to Section 351 of the Code.

7.3 **Entire Agreement.** This Agreement and the Schedules and Exhibits hereto, which are herein incorporated by reference, constitute the entire agreement among the parties concerning the Exchange, and supersede all prior agreements and understandings, oral or written, between them concerning the Exchange but, for the avoidance of doubt, do not supersede the New Shareholders Agreements or the Stock Purchase Agreement. Nothing herein, express or implied, is intended to confer upon any third party any rights, remedies obligations, or liabilities under or by reason of this Agreement except as expressly provided herein.

7.4 **Counterparts/Facsimile.** This Agreement may be executed by facsimile, by electronic portable document format (.pdf) and in more than one counterpart, each of which shall be deemed an original but all of which together shall constitute one and the same instrument.

7.5 **Confidentiality.** The parties hereto agree to keep confidential, and not to disclose to any third party, any non-public information with respect to this Agreement or the terms hereof, provided that a party may disclose any such information: (i) as has become generally available to the public, other than as a result of a breach of this Section; (ii) to its employees and professional advisers who need to know such information and agree to keep it confidential; (iii) to the extent required in order to comply with contractual reporting obligations, to its limited partners or members who have agreed to keep such information confidential; (iv) to the extent necessary in order to comply with any law, order, regulation or ruling applicable to such party; and (v) as may be required in response to any summons or subpoena or in connection with any litigation, it being agreed that, unless such information has become generally available to the public, if such information is being requested pursuant to a summons or subpoena or a discovery request in connection with a litigation, (x) the party shall give DELCO notice of such request and shall cooperate with DELCO if it so requests so that DELCO may, in its discretion, seek a protective order or other appropriate remedy, if available, and (y) in the event that such protective order is not obtained (or sought by such

party after notice), the disclosing party (a) shall furnish only that portion of the information which, in accordance with the advice of counsel, is legally required to be furnished and (b) will exercise its reasonable best efforts to obtain assurances that confidential treatment will be accorded such information.

7.6 **Titles and Subtitles.** The titles and subtitles used in this Agreement are used for convenience only and are not to be considered in construing or interpreting this Agreement.

7.7 **Acknowledgement of Nature of Representation and Waiver of Conflicts.** Each party to this Agreement acknowledges that Hogan Lovells LLP ("**Hogan**") has in the past performed and is or may now or in the future represent one or more Securityholders or their affiliates in matters unrelated to the transactions contemplated by this Agreement, including representation of such Securityholders or their affiliates in matters of a similar nature. The applicable rules of professional conduct require that Hogan inform the parties hereunder of this representation and obtain their consent. Hogan and Aabø-Evensen & Co Advokatfirma AS ("**Aabø-Evensen**") have served as outside general counsel to NORCO and DELCO and have negotiated the terms of the Exchange, Stock Purchase and related transactions, solely on behalf of NORCO and DELCO. NORCO and each Securityholder hereby (a) acknowledge that they have had an opportunity to ask for and have obtained information relevant to such representation, including disclosure of the reasonably foreseeable adverse consequences of such representation; (b) acknowledge that with respect to the Exchange, the Stock Purchase, and related transactions, Hogan and Aabø-Evensen have represented solely NORCO and DELCO, and not any Securityholder, director or employee of NORCO or DELCO; and (c) gives its informed consent to Hogan's representation of NORCO and DELCO in the Exchange, the Stock Purchase and related transactions. **Each Securityholder, director and employee of NORCO and DELCO have been advised to seek advice from their own counsel and tax advisers with respect to the Exchange, the Stock Purchase and related transactions, and that such transactions may have adverse tax consequences for Securityholders.**

7.8 **Amendments and Waivers.** Any provision of this Agreement may be amended and the observance of any provision of this Agreement may be waived (either generally or in a particular instance and either retroactively or prospectively) only with the written consent of the party against whom

such amendment or waiver is being sought, except that any party alone may waive the observance of any provision hereof only as to himself, herself or itself.

7.9 **Governing Law.** This Agreement shall be governed by, and construed in accordance with, the laws of the State of Delaware without regard to conflicts of law principles or any jurisdiction.

7.10 **Specific Performance.** The parties hereto acknowledge and agree that in the event any of the provisions of this Agreement are not performed in accordance with their specific terms or otherwise are breached, the parties hereto may be irreparably and immediately harmed and could not be made whole by monetary damages. Accordingly, the parties agree that the other parties shall be entitled to an injunction or injunctions to prevent breaches of the provisions of this Agreement and to enforce specifically this Agreement and the terms and provisions hereof in any action instituted in any court having jurisdiction over the parties and the matter in addition to any other remedy to which it may be entitled, at law or in equity.

7.11 **Notices.** All notices, requests and demands to or upon the respective parties hereto to be effective shall be in writing, by facsimile, by overnight courier or by registered or certified mail, postage prepaid and return receipt requested, and shall be deemed to have been duly

given or made upon: (i) delivery by hand, (ii) two business days after being sent by overnight courier, (iii) five business days after being sent by registered or certified mail, and (iv) in the case of transmission by facsimile, when confirmation of receipt is obtained. Such communications shall be addressed and directed to each party at the respective address set forth on Schedule 1, and to NORCO and DELCO as follows, unless such party may designate by notice in writing a new address to which any notice, demand, request, or communication may thereafter be so given, served, or sent.

To NORCO:

Oslo Innovation Centre
Gaustadalléen 21, 0349
Oslo, Norway
Attn: Helena Djupesland

To DELCO:

c/o TKWD Ventures LLC
152 West 57th Street
10th Floor
New York, NY 10019

7.12 **Severability.** In case any of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal, or unenforceable in any respect, any such invalidity, illegality, or unenforceability shall not affect any other provision of this Agreement, but this Agreement shall be construed as if such invalid, illegal, or unenforceable provision had been limited or modified (consistent with its general intent) to the extent necessary to make it valid, legal, and enforceable, or if it shall not be possible to so limit or modify such invalid, illegal, or unenforceable provision or part of a provision, this Agreement shall be construed as if such invalid, illegal, or unenforceable provision or part of a provision had never been contained in this Agreement.

7.13 **Exchange Agreement Period**. This Agreement will expire at 12:00 midnight, New York City time at the end of the 28th day of June, 2010, unless at or prior to that time this Agreement has been executed by all Securityholders listed on the signature pages attached hereto.

****

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

OPTINOSE INC.

By: /s/ Peter Miller
Name: Peter Miller
Title: President and Chief Executive Officer

OPTINOSE AS

By: /s/ Helena K. Djupesland
Name: Helena K. Djupesland
Title: Authorized Signatory

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

BODIL M. ARLANDER

By: /s/ Bodil M. Arlander
Name: Bodil M. Arlander
Title:
(check the appropriate box)
x resident within the United States
o resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

BAKELITTFABRIRKEN HOLDING AS

By: /s/ Jan Otto Ringdal
Name: Jan Otto Ringdal
Title: Chairman
(check the appropriate box)
o resident within the United States
x resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

ENTREPRENEURS FUND LP

By: Entrepreneurs Fund General Partner Limited in its capacity as General Partner of Entrepreneurs Fund LP

By: /s/ Paul Bradshaw
Name: Paul Bradshaw
Title: Director
(check the appropriate box)
o resident within the United States
x resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

JOHN DAVID HOWARD

By: /s/ John David Howard
Name: John David Howard
Title:
(check the appropriate box)
x resident within the United States
o resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

IKOS INVEST AS

By: /s/ Per Djupesland
Name: Per Djupesland
Title: Chairman
(check the appropriate box)
o resident within the United States
x resident outside the United States

By: /s/ Helena K. Djupesland
Name: Helena K. Djupesland
Title: Director
(check the appropriate box)
o resident within the United States
x resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

INSPIRE AS

By: /s/ J.O Willums
Name: J.O Willums
Title: CEO
(check the appropriate box)
o resident within the United States
x resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

Invictum AS

By: /s/ Trond Holland
Name: Trond Holland
Title: Chairman of the Board
(check the appropriate box)
o resident within the United States
x resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

ROBERT JUNEJA

By: /s/ Robert Juneja
Name: Robert Juneja
Title:
(check the appropriate box)
x resident within the United States
o resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

GWYNETH M. KETTERER

By: /s/ Gwyneth M. Ketterer
Name: Gwyneth M. Ketterer
Title:
(check the appropriate box)
x resident within the United States
o resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

DAVID E. KING

By: /s/ David E. King
Name: David E. King
Title:
(check the appropriate box)
x resident within the United States
o resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

KIRKEVEIEN 98, AS

By: /s/ Jan Otto Ringdal
Name: Jan Otto Ringdal
Title: Managing Director
(check the appropriate box)
o resident within the United States
x resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

PAUL STEVEN LATTANZIO

By: /s/ Paul Steven Lattanzio
Name: Paul Steven Lattanzio
Title:
(check the appropriate box)
x resident within the United States
o resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

OSLO PARTNERS AS

By: /s/ Bjorn Farmveit
Name: Bjorn Farmveit
Title:
(check the appropriate box)
o resident within the United States
x resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

RICHARD L. PERKAL

By: /s/ Richard L. Perkal
Name: Richard L. Perkal

Title:

(check the appropriate box)

x resident within the United States

o resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

TKWD VENTURES LLC

By: WFD Ventures LLC, its Manager

By: /s/ William F. Doyle

Name: William F. Doyle

Title: Managing Director

(check the appropriate box)

x resident within the United States

o resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

DOUGLAS ROBERT KORN

By: /s/ Douglas Robert Korn

Name: Douglas Robert Korn

Title:

(check the appropriate box)

x resident within the United States

o resident outside the United States

SIGNATURE PAGE TO EXCHANGE AGREEMENT

SCHEDULE 1

NORCO SECURITYHOLDERS

Schedules omitted pursuant to item 601(b)(2) of Regulation S-K. The Company agrees to furnish supplementally a copy of any omitted schedule to the SEC upon its request.

SCHEDULE 2

CAPITALIZATION OF OPTINOSE, INC.

Schedules omitted pursuant to item 601(b)(2) of Regulation S-K. The Company agrees to furnish supplementally a copy of any omitted schedule to the SEC upon its request.

EXHIBIT A

CERTIFICATE OF INCORPORATION

Schedules omitted pursuant to item 601(b)(2) of Regulation S-K. The Company agrees to furnish supplementally a copy of any omitted schedule to the SEC upon its request.

EXHIBIT B

FORM OF WARRANT

Schedules omitted pursuant to item 601(b)(2) of Regulation S-K. The Company agrees to furnish supplementally a copy of any omitted schedule to the SEC upon its request.

EXHIBIT C

FORM OF TRANSFER NOTICE

Schedules omitted pursuant to item 601(b)(2) of Regulation S-K. The Company agrees to furnish supplementally a copy of any omitted schedule to the SEC upon its request.

THIRD AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
OPTINOSE, INC.

OptiNose, Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the "Corporation"), does hereby certify as follows:

1. The name of the Corporation is OptiNose, Inc. The date of filing of its original Certificate of Incorporation with the Secretary of State was May 26, 2010 (the "Original Certificate"). The Original Certificate was amended in its entirety pursuant to a Restated Certificate of Incorporation filed with the Secretary of State of the State of Delaware on June 4, 2010 (the "Restated Certificate"). The Restated Certificate was amended pursuant to a Certificate of Amendment of Restated Certificate filed with the Secretary of State of the State of Delaware on November 18, 2011 (the "First Amendment"), and a Certificate of Amendment of Restated Certificate filed with the Secretary of State of the State of Delaware on April 1, 2014 (the "Second Amendment"). The Restated Certificate, as amended by the First Amendment and Second Amendment, was further amended in its entirety pursuant to a Second Amended and Restated Certificate of Incorporation filed with the Secretary of State of the State of Delaware on July 18, 2014 (the "Second Restated Certificate").

2. Pursuant to Sections 242 and 245 of the General Corporation Law, this Third Amended and Restated Certificate of Incorporation restates and integrates and further amends the Second Restated Certificate.

3. The Third Amended and Restated Certificate of Incorporation of OptiNose, Inc., in the form attached hereto as Exhibit A, has been duly adopted in accordance with the provisions of Sections 141, 228, 242 and 245 of the General Corporation Law of the State of Delaware ("DGCL") by the directors and stockholders of the Corporation.

4. The Third Amended and Restated Certificate of Incorporation so adopted reads in its entirety as set forth in Exhibit A attached hereto and is incorporated herein by reference.

5. This Certificate shall be effective on the date of filing with the Secretary of State of the State of Delaware.

IN WITNESS WHEREOF, the Corporation has caused this Third Amended and Restated Certificate of Incorporation to be executed by its Chief Executive Officer on this 24th day of March, 2017.

OPTINOSE, INC.

By: /s/ Peter Miller
Peter Miller
Chief Executive Officer

EXHIBIT A

THIRD AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
OPTINOSE, INC.

ARTICLE 1

The name of the corporation is OptiNose, Inc. (the "Corporation").

ARTICLE 2

The Corporation's registered office in the State of Delaware is located at Corporation Service Company, 2711 Centerville Road, City of Wilmington, County of New Castle, Delaware. The name of its registered agent at such address is Corporation Service Company.

ARTICLE 3

The purposes for which the Corporation is formed are to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law of Delaware and to possess and exercise all of the powers and privileges granted by such law and any other law of Delaware.

ARTICLE 4

4.1. Authorized Capital. The aggregate number of shares of all classes of stock which the Corporation shall have authority to issue is 22,000,000, such shares being designated as follows: (i) 13,067,149 shares of Common Stock, par value $0.001 per share (the "Common Stock"), and (ii) 8,932,851 shares of Preferred Stock, par value $0.001 per share (the "Preferred Stock").

4.2. Dividends. If the Corporation shall declare, pay or set aside any dividends or other distributions on shares of any class or series of capital stock of the Corporation, such dividends (whether in the form of cash, securities or other assets of the Corporation) shall be distributed among the holders of the shares of Common Stock and the Preferred Stock, pro rata based on the number of shares held by each such holder, treating for this purpose all of the Preferred Stock as if they had been converted to Common Stock pursuant to Section 4.7 immediately prior to the record date for determining holders of Common Stock entitled to receive such distribution.

4.3. Common Stock.

4.3.1. General. Except as required by law or as provided in this Certificate, all shares of Common Stock shall be identical in all respects and shall entitle the

holders thereof to the same rights and privileges, subject to the same qualifications, limitations and restrictions.

4.3.2. Voting.

(a) Subject to the rights of any then outstanding Preferred Stock (including the rights of the Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock under Section 4.6 below), each holder of Common Stock shall be entitled to vote on all matters submitted to a vote of the stockholders of the Corporation, including, subject to Section 4.5.2, the election of directors, and shall be entitled to one vote per share of Common Stock held by such holder. There shall be no cumulative voting. Except as provided by the first sentence of Section 242(b)(2) of the DGCL and subject to the rights of any then outstanding Preferred Stock (including the rights of the Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock under Section 4.6 below), the holders of Common Stock shall vote together with the holders of the Preferred Stock as a single class. Except as otherwise provided herein, the number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the outstanding shares of capital stock of the Corporation entitled to vote thereon, and no vote of the holders of Common Stock, voting separately as a class, shall be required therefor, irrespective of the provisions of Section 242(b)(2) of the DGCL, as amended from time to time.

(b) Except as otherwise required by the first sentence of Section 242(b)(2) of the DGCL, holders of Common Stock, as such, shall not be entitled to vote on any amendment to this Certificate that relates solely to the terms of any class or series of Preferred Stock, and the holders of the respective class or series of Preferred Stock, separately as a class, shall be the only class or series of the Corporation's capital stock entitled to vote on any such amendment.

4.3.3. Liquidation. Subject to the rights and preferences applicable to the Preferred Stock outstanding at any time as hereinafter set forth, upon a Liquidity Event, the holders of shares of Common Stock will be entitled to receive all assets of the Corporation available for distribution to its stockholders. "Liquidity Event" shall mean a liquidation, dissolution or winding up or bankruptcy of the Corporation, whether voluntary or involuntary, and any of the events identified in Section 4.4.3.

4.4. Preferred Stock.

4.4.1. Designation of Preferred Stock; Rank.

(a) 285,480 shares of Preferred Stock shall be designated as Series A Preferred Stock (the "Series A Preferred Stock"). The Series A Preferred Stock shall rank junior to the Series B Preferred Stock (as defined below), Series C Preferred Stock (as defined below), Series C-1 Preferred Stock (as defined below), Series C-2 Preferred Stock (as defined below) and Series D Preferred Stock (as defined below) and senior to the Common Stock as to liquidation preference and redemption rights. The original issuance price of the Series A Preferred Stock (subject to equitable adjustment for any stock dividend, stock split, combination,

reorganization, recapitalization, reclassification or other similar event) shall be $18.85 per share (the "Series A Original Issue Price").

(b) 35,680 shares of Preferred Stock shall be designated as Series B-1 Preferred Stock (the "Series B-1 Preferred Stock") and 782,600 shares of Preferred Stock shall be designated as Series B-2 Preferred Stock (the "Series B-2 Preferred Stock," and together with the Series B-1 Preferred Stock, the "Series B Preferred Stock"). The Series B Preferred Stock shall rank junior to the Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock (as defined below) and Series D Preferred Stock (as defined below) and senior to the Series A Preferred Stock and Common Stock as to liquidation preference and senior to the Common Stock with respect to redemption. The Series B-1 Preferred Stock and the Series B-2 Preferred Stock shall have the same seniority, rights, privileges, qualifications, limitations and restrictions and shall be identical in all respects other than as described in the Corporation's Certificate of Incorporation. The original issuance price of the Series B-1 Preferred Stock (subject to equitable adjustment for any stock dividend, stock split, combination, reorganization, recapitalization, reclassification or other similar event) shall be $18.85 per share (the "Series B-1 Original Issue Price"). The original issuance price of the Series B-2 Preferred Stock (subject to equitable adjustment for any stock dividend, stock split, combination, reorganization, recapitalization, reclassification or other similar event) shall be $18.86 per share (the "Series B-2 Original Issue Price").

(c) 4,115,344 shares of Preferred Stock shall be designated as Series C Preferred Stock (the "Series C Preferred Stock"). The Series C Preferred Stock shall rank senior to the Series B Preferred Stock, the Series A Preferred Stock and to the Common Stock as to liquidation preference and senior to the Common Stock with respect to redemption and shall rank pari passu to the Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock. The original issuance price of the Series C Preferred Stock (subject to equitable adjustment for any stock

dividend, stock split, combination, reorganization, recapitalization, reclassification or other similar event) shall be $17.20 per share (the "Series C Original Issue Price").

(d) 1,656,410 shares of Preferred Stock shall be designated as Series C-1 Preferred Stock (the "Series C-1 Preferred Stock"). The Series C-1 Preferred Stock shall rank senior to the Series B Preferred Stock, the Series A Preferred Stock and to the Common Stock as to liquidation preference and senior to the Common Stock with respect to redemption and shall rank pari passu to the Series C Preferred Stock, the Series C-2 Preferred Stock and Series D Preferred Stock. The original issuance price of the Series C-1 Preferred Stock (subject to equitable adjustment for any stock dividend, stock split, combination, reorganization, recapitalization, reclassification or other similar event) shall be $21.13 per share (the "Series C-1 Original Issue Price").

(e) 687,474 shares of Preferred Stock shall be designated as Series C-2 Preferred Stock (the "Series C-2 Preferred Stock"). The Series C-2 Preferred Stock shall rank senior to the Series B Preferred Stock, Series A Preferred Stock and Common Stock as to liquidation preference and senior to the Common Stock with respect to redemption and shall rank pari passu to the Series C Preferred Stock, Series C-1 Preferred Stock and Series D Preferred Stock. The original issuance price of the Series C-2 Preferred Stock (subject to

equitable adjustment for any stock dividend, stock split, combination, reorganization, recapitalization, reclassification or other similar event) shall be $28.40 per share (the "Series C-2 Original Issue Price").

(f) 1,369,863 shares of Preferred Stock shall be designated as Series D Preferred Stock (the "Series D Preferred Stock"). The Series D Preferred Stock shall rank senior to the Series B Preferred Stock, Series A Preferred Stock and Common Stock as to liquidation preference and senior to the Common Stock with respect to redemption and shall rank pari passu to the Series C Preferred Stock, Series C-1 Preferred Stock, and Series C-2 Preferred Stock. The original issuance price of the Series D Preferred Stock (subject to equitable adjustment for any stock dividend, stock split, combination, reorganization, recapitalization, reclassification or other similar event) shall be $32.85 per share (the "Series D Original Issue Price").

4.4.2. Liquidation.

(a) The holders of the Series A Preferred Stock, the Series B Preferred Stock, the Series C Preferred Stock, Series C-1 Preferred Stock, the Series C-2 Preferred Stock and the Series D Preferred Stock shall have preferential rights to the assets of the Corporation upon the occurrence of a Liquidity Event, as more fully set forth in this Section 4.4.2. Upon a Liquidity Event, all of the assets of the Corporation available for distribution to holders of the Corporation's capital stock of all classes and series, whether such assets are capital, surplus or earnings (the "Available Assets") are to be distributed in accordance with this Section 4.4.2.

(b) Subject to Section 4.4.2(g), upon a Liquidity Event, before any distribution or payment is made to any holders of Series B Preferred Stock, Series A Preferred Stock, Common Stock or any other class or series of capital stock of the Corporation designated to be junior to the Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock in liquidation preference, the holder of each share of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock or Series D Preferred Stock shall be entitled to be paid out of the Available Assets, an amount equal to the sum of (A) the Series C Original Issue Price, Series C-1 Original Issue Price, Series C-2 Original Issue Price or Series D Original Issue Price, respectively, plus (B) any declared but unpaid dividends on such share of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock or Series D Preferred Stock, respectively. The amount due and payable under this Section 4.4.2(b) is referred to as the "Series C Standard Liquidation Preference," "Series C-1 Standard Liquidation Preference," "Series C-2 Standard Liquidation Preference" or "Series D Standard Liquidation Preference," respectively.

(c) Upon a Liquidity Event, after payment shall have been made to the holders of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock, and Series D Preferred Stock of the full amounts to which they shall be entitled under Section 4.4.2(b) or Section 4.4.2(g), as applicable, and prior and in preference to any distribution or payment made to any holders of Series A Preferred Stock, Common Stock or any other class or series of capital stock of the Corporation designated to be junior to Series B Preferred Stock in liquidation preference, and subject to the liquidation rights and preferences of any class or series

of Preferred Stock designated in the future to be senior to Series B-1 Preferred Stock with respect to liquidation preference, the holder of each share of (i) Series B-1 Preferred Stock shall be entitled to be paid out of the Available Assets, an amount equal to the sum of (A) the Series B-1 Original Issue Price plus (B) any declared but unpaid dividends on such share of Series B-1 Preferred Stock and (ii) Series B-2 Preferred Stock shall be entitled to be paid out of the Available Assets, an amount equal to the sum of (A) the Series B-2 Original Issue Price plus (B) any declared but unpaid dividends on such share of Series B-2 Preferred Stock. The amounts due and payable under this Section 4.4.2(c) are referred to as the "Series B Liquidation Preference."

(d) Upon a Liquidity Event, after payment shall have been made to the holders of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock of the full amounts to which they shall be entitled under Section 4.4.2(b) or Section 4.4.2(g), as applicable, and to the holders of Series B Preferred Stock of the full amounts to which they shall be entitled under Section 4.4.2(c), respectively, and prior and in preference to any distribution or payment to any holders of Common Stock or any other class or series of capital stock of the Corporation designated to be junior to Series A Preferred Stock in liquidation preference, and subject to the liquidation rights and preferences of any class or series of Preferred Stock designated in the future to be senior to Series A Preferred Stock with respect to liquidation preference, the holder of each share Series A Preferred Stock shall be entitled to receive, out of Available Assets, an amount equal to the sum of (A) the Series A Original Issue Price plus (B) any declared but unpaid dividends on such share of Series A Preferred Stock. The amount due and payable under this Section 4.4.2(d) is referred to as the "Series A Liquidation Preference."

(e) If upon a Liquidity Event, the Available Assets shall be insufficient to permit the payment to the holders of Preferred Stock of the full preferential amounts to which they are entitled pursuant to Section 4.4.2(b) or Section 4.4.2(g), as applicable, Section 4.4.2(c) and Section 4.4.2(d), then, Available Assets shall be distributed as follows: (i) first, to the holders of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock, pro rata in accordance with the full amounts to which they otherwise would be entitled under

Section 4.4.2(b) or Section 4.4.2(g), as applicable; provided that, if the Available Assets shall be insufficient to permit the payment to the holders of Series D Preferred Stock, Series C-2 Preferred Stock, Series C-1 Preferred Stock and Series C Preferred Stock of the full preferential amounts to which they are entitled pursuant to Section 4.4.2(b) or Section 4.4.2(g), as applicable, then the Available Assets shall be distributed to holders of Series D Preferred Stock, Series C-2 Preferred Stock, Series C-1 Preferred Stock and Series C Preferred Stock in amounts equal to the Available Assets multiplied by the Series D Distribution Ratio, Series C-2 Distribution Ratio, Series C-1 Distribution Ratio and Series C Distribution Ratio (each as defined below), respectively; (ii) second, to the holders of Series B Preferred Stock, pro rata in accordance with the full amounts to which they otherwise would be entitled under Section 4.4.2(c); and (iii) third, to the holders of Series A Preferred Stock, pro rata in accordance with the full amounts to which they otherwise would be entitled under this Section 4.4.2(e). The "Series D Distribution Ratio" shall mean a fraction, the numerator of which shall be the aggregate Series D Minimum Liquidation Preference (as defined below), and the denominator of which shall be the aggregate Series D Minimum Liquidation Preference (as defined below), plus the aggregate Series C-2 Minimum Liquidation Preference (as defined below), plus the aggregate

Series C-1 Minimum Liquidation Preference (as defined below), plus the aggregate Series C Minimum Liquidation Preference (as defined below). The "Series C-2 Distribution Ratio" shall mean a fraction, the numerator of which shall be the aggregate Series C-2 Minimum Liquidation Preference, and the denominator of which shall be the aggregate Series D Minimum Liquidation Preference, plus the aggregate Series C-2 Minimum Liquidation Preference, plus the aggregate Series C-1 Minimum Liquidation Preference, plus the aggregate Series C Minimum Liquidation Preference. The "Series C-1 Distribution Ratio" shall mean a fraction, the numerator of which shall be the aggregate Series C-1 Minimum Liquidation Preference, and the denominator of which shall be the aggregate Series D Minimum Liquidation Preference, plus the aggregate Series C-2 Minimum Liquidation Preference, plus the aggregate Series C-1 Minimum Liquidation Preference, plus the aggregate Series C Minimum Liquidation Preference. The "Series C Distribution Ratio" shall mean a fraction, the numerator of which shall be the aggregate Series C Minimum Liquidation Preference, and the denominator of which shall be the aggregate Series D Minimum Liquidation Preference, plus the aggregate Series C-2 Minimum Liquidation Preference, plus the aggregate Series C-1 Minimum Liquidation Preference, plus the aggregate Series C Minimum Liquidation Preference.

(f) After the payment of all preferential amounts required to be paid to the holders of shares of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock, subject to Section 4.4.2(h), if applicable, the remaining Available Assets, if any, shall be distributed among the holders of the shares of Common Stock and the Preferred Stock, pro rata based on the number of shares held by each such holder, treating for this purpose all such securities as if they had been converted to Common Stock pursuant to Section 4.7 immediately prior to the Liquidity Event.

(g) Notwithstanding anything to the contrary in this Section 4.4.2, if the Available Assets available for distribution or payment in connection with a Liquidity Event to the holder of each share of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock or Series D Preferred Stock pursuant to Section 4.4.2(b) and Section 4.4.2(f), excluding and disregarding for purposes of this Section 4.4.2(g) any Available Assets that are subject to any Contingency pursuant to Section 4.4.6, would result in a distribution or payment in connection with such Liquidity Event to such holder that is less than an amount equal to (i) the Series C Original Issue Price, Series C-1 Original Issue Price, Series C-2 Original Issue Price or Series D Original Issue Price, respectively, plus (ii) eight percent (8%) per annum on such Series C Original Issue Price, Series C-1 Original Issue Price, Series C-2 Original Issue Price or Series D Original Issue Price, as applicable, accruing daily and compounded annually on each share of Series C Preferred Stock from the original issuance date with respect to such share of Series C Preferred Stock, on each share of Series C-1 Preferred Stock from the original issuance date with respect to such share of Series C-1 Preferred Stock, on each share of Series C-2 Preferred Stock from the original issuance date with respect to such share of Series C-2 Preferred Stock and on each share of Series D Preferred Stock from the original issuance date with respect to such share of Series D Preferred Stock (such amount, the "Series C Minimum Liquidation Preference," "Series C-1 Minimum Liquidation Preference," "Series C-2 Minimum Liquidation Preference" or "Series D Minimum Liquidation Preference," respectively), then, instead of receiving the Series C Standard Liquidation Preference, Series C-1 Standard Liquidation Preference, Series C-2 Standard Liquidation Preference or Series D Standard Liquidation Preference under Section

4.4.2(b), the holder of each share of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock or Series D Preferred Stock shall be entitled to receive the sum of (A) the Series C Minimum Liquidation Preference, Series C-1 Minimum Liquidation Preference, Series C-2 Minimum Liquidation Preference or Series D Minimum Liquidation Preference, as applicable, and (B) any declared but unpaid dividends on such share of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock or Series D Preferred Stock, respectively, in each case before any Available Assets are distributed and paid pursuant to Section 4.4.2(c), Section 4.4.2(d), Section 4.4.2(e) and Section 4.4.2(f). The amount determined by subtracting the Series C Original Issue Price, Series C-1 Original Issue Price, Series C-2 Original Issue Price or Series D Original Issue Price, respectively, from the Series C Minimum Liquidation Preference, Series C-1 Minimum Liquidation Preference, Series C-2 Minimum Liquidation Preference or Series D Minimum Liquidation Preference, respectively, is referred to hereinafter as the "Series C Minimum Return," "Series C-1 Minimum Return," "Series C-2 Minimum Return," or "Series D Minimum Return," respectively. The Series C Minimum Return, Series C-1 Minimum Return, Series C-2 Minimum Return and Series D Minimum Return are intended only to be payable as a component of the preferential distributions pursuant to Section 4.4.2(b) and this Section 4.4.2(g) if and only if the aggregate distributions to be received by each holder of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock or Series D Preferred Stock pursuant to Section 4.4.2(b) and Section 4.4.2(f) would not equal or exceed the Series C Minimum Liquidation Preference, Series C-1 Minimum Liquidation Preference, Series C-2 Minimum Liquidation Preference or Series D Minimum Liquidation Preference, respectively.

(h) In the event that (i) a part of the Available Assets upon a Liquidity Event is subject to a Contingency (as defined in Section 4.4.6) (such assets, the "Restricted Assets"), (ii) upon the final and unconditional release of any Restricted Assets from the Contingency (whether by way of release from escrow, payment of earn-out or satisfaction of condition or otherwise) (such assets, the "Released Restricted Assets"), the holders of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock have received, as a result of the application of Section 4.4.6 and Section 4.4.2(g), a distribution and payment in excess of the Series C Standard Liquidation Preference, Series C-1 Standard Liquidation Preference, Series C-2 Standard Liquidation Preference and Series D Standard Liquidation Preference, as applicable, and (iii) the holders of the Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock would receive, after giving effect to this Section 4.4.2(h), pursuant to Section 4.4.2(b), Section 4.4.2(f), Section 4.4.2(g) and Section 4.4.6, distributions of Available Assets (including such Released Restricted Assets, but not including any Restricted Assets that remain subject to the Contingency) equal to or exceeding the Series C Standard Liquidation Preference, Series C-1 Standard Liquidation Preference, Series C-2 Standard Liquidation Preference and Series D Standard Liquidation Preference, as

applicable, then, upon such final and unconditional release of such Released Restricted Assets from the Contingency, the distributions pursuant to Section 4.4.2(f) to the holders of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock from such Released Restricted Assets shall be reduced by the amount of distributions to holders of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock pursuant to Section 4.4.2(g) and Section 4.4.6 in excess of the Series C Standard Liquidation Preference, Series C-1 Standard Liquidation Preference, Series C-2 Standard Liquidation Preference and Series D

Liquidation Preference, as applicable, which excess amount shall then be distributed among the holders of Series B Preferred Stock, Series A Preferred Stock and Common Stock, pro rata based on the number of shares held by each such holder, treating for this purpose all such securities as if they had been converted to Common Stock pursuant to Section 4.7 immediately prior to the Liquidity Event. Notwithstanding anything to the contrary in this Section 4.4 and for purposes of clarification of the foregoing provisions of this Section 4.4.2(h), (x) if, upon the release of any Restricted Assets, all distributions of Available Assets to the holders of the Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock at or prior to such time have been made pursuant to Section 4.4.2(b) and Section 4.4.2(f) and not as a result of the application of Section 4.4.2(g), then the first sentence of this Section 4.4.2(h) shall not be applicable with respect to any release of Restricted Assets and such released Restricted Assets shall be distributed pursuant to Section 4.4.2(f) to the holders of the shares of Common Stock and the Preferred Stock pro rata on an as-converted basis, and (y) the application of this Section 4.4.2(h) shall in no circumstance result in the holders of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock receiving a distribution from the Available Assets that is less than the distribution that the holders of Series C Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock would have received from such Available Assets if none of the Available Assets had been subject to a Contingency and had, instead, all been distributed simultaneously upon the Liquidity Event pursuant to this Section 4.4.2 (without application of Section 4.4.6). Except as set forth in the first sentence of this Section 4.4.2(h), the rights of the holders of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock to participate, under Section 4.4.2(f), in the distribution of any additional proceeds or consideration which becomes payable to the stockholders of the Corporation upon release of the Contingency, shall not in any way be limited or reduced.

(i) Following conversion of shares of Preferred Stock into shares of Common Stock pursuant to Section 4.7, the holders of such Common Stock shall not be entitled to any preferential payment or distribution in case of any Liquidity Event, but shall share ratably in any distribution of the assets of the Corporation to all the holders of Common Stock.

4.4.3. Merger/Sale as Liquidation, etc. Any (a) acquisition or exclusive license (or grant, sale or transfer of a license to all or a substantial part of the Corporation's assets or intellectual property, or any combination of licenses having the same effect), in a single transaction or series of related transactions, by the Corporation or any subsidiary of the Corporation of all or substantially all of the assets or intellectual property of the Corporation and its subsidiaries taken as a whole or the sale or disposition (whether by merger, exclusive license, or otherwise) of one or more subsidiaries of the Corporation if substantially all of the assets or intellectual property of the Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, or (b) acquisition of the Corporation by another corporation or entity by consolidation, merger, share exchange or other reorganization or combination in which the shares of capital stock of the Corporation outstanding immediately prior to such transaction represent, immediately after such transaction, securities representing less than fifty percent (50%) of the voting power of the Corporation or other entity surviving such transaction, or (c) acquisition of the stock of the Corporation by a single person or entity or group of affiliated persons or entities (other than an acquisition of stock from the Corporation in a bona fide equity financing the purpose of which is solely to raise capital for general corporate purposes) which

results in such person or entity or group holding securities representing more than fifty percent (50%) of the voting power of the Corporation, shall, unless the holders of (x) Preferred Stock representing a Preferred Supermajority and (y) a majority of the Series D Preferred Stock elect otherwise, be regarded as a Liquidity Event for purposes of Section 4.4.2 (provided that, for the purpose of this Subsection 4.4.3, all shares of Common Stock issuable upon exercise of in-the-money Options (as defined below) outstanding immediately prior to such merger or consolidation or upon conversion of in-the-money Convertible Securities (as defined below) outstanding immediately prior to such merger or consolidation shall be deemed to be outstanding immediately prior to such merger or consolidation and, if applicable, converted or exchanged in such merger or consolidation on the same terms as the actual outstanding shares of Common Stock are converted or exchanged).

4.4.4. Notice and Transaction Payment. At least ten (10) business days prior to the consummation of a Liquidity Event, the Corporation shall provide the holders of the Preferred Stock and Common Stock written notice of such event. Upon the consummation of the Liquidity Event, to the extent there are assets legally available therefor, the holders of Preferred Stock and Common Stock shall be entitled to receive from the Corporation, in exchange for, the redemption of or otherwise in consideration of such shares, prior to or concurrently with consideration from any such Liquidity Event being paid to the Corporation (if the consideration is to be received by the Corporation in an asset transaction), or by any third party to stockholders of the Corporation other than holders of Preferred Stock (if the consideration is to be received directly by such stockholders in a merger or stock purchase transaction), a total payment (the "Transaction Payment") equal to the amount that the holders of shares of Preferred Stock and Common Stock would have received had the entire consideration in the transaction (with respect to a Liquidity Event involving a sale of all or substantially all of the assets of the Corporation, net of any liabilities of the Corporation not assumed or otherwise paid by the acquiring entity) been deemed Available Assets for distribution to the stockholders of the Corporation upon liquidation pursuant to Section 4.4.2.

4.4.5. Distributions Other Than Cash. Whenever the distribution upon a Liquidity Event provided for in this Section 4.4 shall be payable in whole or in part in property other than cash, the value of any property distributed shall be the fair market value of such property as reasonably determined in good faith by the Board of Directors of the Corporation. All distributions of property other than cash made hereunder shall be made in accordance with the liquidation amounts and preferences payable with respect to each such series and class.

4.4.6. Allocation of Escrow. Notwithstanding anything to the contrary in this Section 4.4, upon a Liquidity Event, if any portion of the consideration payable to the stockholders of the Corporation is placed into escrow and/or is payable to the stockholders of the Corporation subject to an earn-out, deferral or other contingencies (each such restriction, a "Contingency"), (a) any portion of such consideration that is not subject to the Contingency (the "Initial Consideration") shall be allocated among the holders of capital stock of the Corporation in accordance with Section 4.4.2 as if the Initial Consideration were the only consideration payable in connection with such Liquidity Event and (b) any additional consideration which becomes payable to

the stockholders of the Corporation upon release from the Contingency (whether by way of release from escrow, payment of earn-out or satisfaction of condition or otherwise) shall be allocated among the holders of capital stock of the Corporation in accordance

with Section 4.4.2 after taking into account the previous payment of the Initial Consideration as part of the same transaction, the agreement or plan of merger, purchase or sale agreement, or other similar agreement pursuant to which such Liquidity Event is being effected shall provide for the foregoing.

4.5. Voting.

4.5.1. Voting Rights.

(a) Except as otherwise required by the first sentence of Section 242(b)(2) of the DGCL or as otherwise provided herein, holders of each series of Preferred Stock shall vote together with the Common Stock as a single class on all matters submitted to a vote of the stockholders of the Corporation (including by written consent), including, subject to Section 4.5.2, the election of directors. Each holder of Preferred Stock shall be entitled to notice of any stockholders' meeting in accordance with the Bylaws of this Corporation at the same time and in the same manner as notice is given to all other stockholders entitled to vote at such meetings. For each vote in which holders of Preferred Stock are entitled to participate together with the Common Stock, and each vote in which holders of one series of Preferred Stock participate together with one or more other series of Preferred Stock, each holder of Preferred Stock shall be entitled to that number of votes that is equal to the number of shares of Common Stock (including fractions of a share) into which such holder's shares of Preferred Stock could be converted pursuant to the provisions of Section 4.7 hereof, as of the record date for the determination of those entitled to vote on such matter or matters or, if no such record date is established, at the date such vote is taken or any written consent of stockholders is solicited.

(b) Except as otherwise required by the first sentence of Section 242(b)(2) of the DGCL, holders of Series A Preferred, as such, shall not be entitled to vote on any amendment to this Certificate that relates solely to the terms of the Common Stock, the Series B Preferred Stock, the Series C Preferred Stock, the Series C-1 Preferred Stock, the Series C-2 Preferred Stock, and/or the Series D Preferred Stock, and the holders of Common Stock, the Series B Preferred Stock, the Series C Preferred Stock, the Series C-1 Preferred Stock, the Series C-2 Preferred Stock and/or the Series D Preferred Stock, as applicable, separately as a single class, shall be the only class(es) or series of the Corporation's capital stock entitled to vote on any such amendment.

(c) Except as otherwise required by the first sentence of Section 242(b)(2) of the DGCL, holders of Series B Preferred Stock, as such, shall not be entitled to vote on any amendment to this Certificate that relates solely to the terms of the Common Stock, the Series A Preferred Stock, the Series C Preferred Stock, the Series C-1 Preferred Stock, the Series C-2 Preferred Stock and/or the Series D Preferred Stock, and the holders of Common Stock, the Series A Preferred Stock, Series C Preferred Stock, the Series C-1 Preferred Stock, the Series C-2 Preferred Stock and/or the Series D Preferred Stock, as applicable, separately as a single class, shall be the only class(es) or series of the Corporation's capital stock entitled to vote on any such amendment.

4.5.2. Election of Directors.

(a) The number of directors constituting the whole Board of Directors of the Corporation shall be fixed at ten (10) (or such smaller or larger number as may be authorized in compliance with Section 4.6).

(b) For so long as there shall be outstanding any shares of Series C-1 Preferred Stock, the holders of the majority of the issued and outstanding shares of Series C-1 Preferred Stock voting together as a separate class, shall be entitled to elect two (2) individuals to the Corporation's Board of Directors, and to remove from office such directors and to fill any vacancy caused by the death, resignation or removal of such directors (such directors to be referred to as the "Series C-1 Directors").

(c) For so long as there shall be outstanding any shares of Series C Preferred Stock, the holders of the majority of the issued and outstanding shares of Series C Preferred Stock voting together as a separate class shall be entitled to elect four (4) individuals to the Corporation's Board of Directors, and to remove from office such directors and to fill any vacancy caused by the death, resignation or removal of such directors (such directors to be referred to as the "Series C Directors").

(d) For so long as there shall be outstanding any shares of Series B Preferred Stock, the holders of a majority of the issued and outstanding shares of Series B Preferred Stock voting together as a separate class, shall be entitled to elect one (1) individual to the Corporation's Board of Directors, and to remove from office such director and to fill any vacancy caused by the death, resignation or removal of such director (such director to be referred to as the "Series B Director").

(e) For so long as there shall be outstanding any shares of Series A Preferred Stock, the holders of a majority of the issued and outstanding shares of Series A Preferred Stock, voting as a separate class, shall be entitled to elect one (1) individual to the Corporation's Board of Directors, and to remove from office such director and to fill any vacancy caused by the death, resignation or removal of such director (such director to be referred to as the "Series A Director" and, together with the Series B Directors and the Series C Directors, the "Investor Directors").

(f) The holders of a majority of the issued and outstanding shares of Common Stock, voting as a separate class, shall be entitled to elect one (1) individual to the Corporation's Board of Directors, and to remove from office such director and to fill any vacancy caused by the death, resignation or removal of such director (such director to be referred to as the "Common Stock Director").

(g) The holders of a majority of the issued and outstanding shares of Preferred Stock (voting on an as-converted basis in accordance with Section 4.5.1 hereof) shall be entitled to elect one (1) director to the Corporation's Board of Directors who shall be the then-serving Chief Executive Officer of the Corporation, and to remove from office such director and to fill any vacancies caused by the death, resignation or removal of such director.

4.6. Separate Vote of Preferred Stock.

4.6.1. Separate Vote of the Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock. For so long as any shares of Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock or Series D Preferred Stock are outstanding, in addition to any other vote required by law or this Certificate, without first obtaining the written consent or affirmative vote of the holders of a majority of the outstanding Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock, determined on an as-converted basis, voting together as a separate class, the Corporation will not, and, as applicable, the Corporation will not permit or cause its subsidiaries to, either directly or indirectly by amendment, merger, consolidation, reclassification, reorganization or in any other manner, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

(a) amend (including by way of merger or otherwise) or repeal or waive any provision of the Corporation's Certificate of Incorporation or Bylaws or other organizational documents of the Corporation or any of its subsidiaries;

(b) authorize, create, reclassify or issue (including by way of merger or otherwise) (i) any class or series of capital stock of the Corporation or any of its subsidiaries or (ii) any securities, bonds, debentures, notes or other obligations convertible into or exchangeable for, or having optional rights to purchase, capital stock of the Corporation or any of its subsidiaries, in each case whether by merger, consolidation or otherwise (other than equity securities granted pursuant to an Equity Incentive Plan approved by the Board of Directors from time to time for not more than 1,637,356 shares of Common Stock in the aggregate);

(c) permit any subsidiary of the Corporation to issue any equity securities or securities convertible into equity securities other than to the Corporation);

(d) declare or pay any cash or other dividend or make any other distribution on the equity capital of the Corporation or on the equity capital of any subsidiary other than dividends or other distributions by a direct or indirect wholly-owned subsidiary of the Corporation to its equity holder;

(e) any (i) liquidation, dissolution, winding-up or similar transaction of the Corporation or any of its subsidiaries, (ii) Liquidity Event, or (iii) sale, transfer, disposition, license or encumbrance of any asset of the Corporation or any of its subsidiaries valued in excess of $500,000;

(f) redeem, retire, purchase, or acquire, directly or indirectly, through subsidiaries or otherwise, any shares of capital stock (other than the repurchase of Common Stock at cost or fair market value upon termination of employment or service);

(g) acquire (or permit or cause any of the Corporation's subsidiaries to acquire), directly or indirectly, any properties, assets, or stock of any other company or entity valued in excess of $500,000, or make any expenditures in excess of $500,000 not included in the annual operating budget;

(h) enter into (or permit or cause any of the Corporation's subsidiaries to enter into) any agreement to incur indebtedness, or assume, guarantee, endorse or otherwise become, directly or indirectly, responsible the obligations of any other person, in each case in an aggregate amount in excess of $500,000, or pledge any assets of the Corporation or any of its subsidiaries in support of obligations in excess of such amount;

(i) enter into (or permit or cause any of the Corporation's subsidiaries to enter into) any material joint venture, partnership, business alliance or similar arrangement, that has an aggregate value in excess of $500,000 in one transaction or series of transactions;

(j) make (or permit or cause any of the Corporation's subsidiaries to make) any loan or advance to any person, including, without limitation, any employee or director of the Corporation or any subsidiary, except advances and similar expenditures in the ordinary course of business or under the terms of an employee stock or option plan approved by the Board of Directors;

(k) change the strategic direction, or lines of business of the Corporation or any of its subsidiaries (including changes to the Corporation's primary focus on the development of the sumatriptan and the fluticasone substances and the nasal delivery devices that are presently intended to deliver these substances);

(l) alter the size of the Corporation's Board of Directors or the size of the board of directors of any of the Corporation's subsidiaries;

(m) make any alteration to the rights and preferences of the Series C Preferred Stock, the Series C-1 Preferred Stock, the Series C-2 Preferred Stock or the Series D Preferred Stock;

(n) make any changes in accounting methods or policies and any change in the Corporation's auditors;

(o) enter into any contract or agreement with any officer, director, stockholder, or employee of the Corporation, including, without limitation, any contract for the sale or repurchase of any of the Corporation's or any of its subsidiaries' capital stock, or rights, warrants, or options therefore (other than any contract or agreement entered into with such person on an arms-length basis);

(p) establish (or permit or cause any of the Corporation's subsidiaries to establish) or amend any material term of any severance or management equity program and or compensation and benefits for senior executives;

(q) hire or remove, with or without cause, the Chief Executive Officer, the Chief Financial Officer or the Chief Scientific Officer of the Corporation or any of its subsidiaries, from time to time;

(r) sell, dispose, or grant (or permit or cause any of the Corporation's subsidiaries to sell, dispose or grant) any rights to any rights to any intellectual property of the Corporation or the granting of any distribution rights thereto;

(s) grant an exclusive license or exclusive distribution rights to any of the Corporation's or its subsidiaries' material intellectual property rights;

(t) create or acquire (or permit or cause any of the Corporation's subsidiaries to create or acquire) any subsidiary that is not, directly or indirectly, wholly-owned by the Corporation; or

(u) agree to take any of the foregoing actions.

4.6.2. In addition to any other vote required by the first sentence of Section 242(b)(2) of the DGCL, or any other applicable provisions of law or of this Certificate, without first obtaining the written consent or affirmative vote of the holders of the majority of the issued and outstanding shares of Series D Preferred Stock voting together as a separate class (the "Series D Majority"), the Corporation shall not, and, as applicable, the Corporation will not permit or cause its subsidiaries to, either directly or indirectly by amendment, merger, consolidation, reclassification, reorganization or in any other manner, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

(a) except in connection with a Liquidity Event or Drag-Along Sale (as defined in the Second Amended and Restated Shareholders' Agreement, dated on or about March 24, 2017, among the Corporation and the stockholders party thereto, as amended from time to time (the "Shareholders' Agreement")) in which (in each case) (i) the Available Assets are distributed in accordance with this Certificate as in effect prior to such amendment or other action, (ii) such amendment, alteration or repeal is not effective until consummation of such Liquidity Event or Drag-Along Sale, and (iii) all holders of the Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock (or, in each case, Common Stock received upon conversion thereof) receive the same form of consideration with respect to such Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock (or, in each case, Common Stock received upon conversion thereof), amend, alter or repeal the powers, preferences or special rights of the Series D Preferred Stock in a manner that affects them adversely; it being understood that and acknowledged that an increase in the authorized capital stock of the Corporation (including the authorization and issuance of securities senior to existing preferred stock) shall not in and of itself be deemed to be an adverse amendment or alteration within the meaning of this Section 4.6.2;

(b) increase or decrease the number of shares of Series D Preferred Stock authorized for issuance under the Corporation's Certificate of Incorporation;

(c) declare or pay any cash or other dividend or make any other distribution on the equity capital of the Corporation or on the equity capital of any subsidiary other than dividends or other distributions by a direct or indirect wholly-owned subsidiary of the Corporation to its equity holders;

(d) redeem, retire, purchase, or acquire, directly or indirectly, through subsidiaries or otherwise, any shares of capital stock (other than redemptions required by Section 4.8 and the repurchase of Common Stock from employees or consultants at cost or fair market value upon termination of employment or service);

(e) enter into any (or amend any existing) contract, agreement or transaction with any affiliate of the Corporation, any stockholder of the Corporation, or any affiliate of such stockholder, including, without limitation, any contract for the sale or purchase of any of the Corporation's or any of its subsidiaries' capital stock, or rights, warrants, or options therefore (other than any contract, agreement or transaction (i) on commercially reasonable terms and approved by a majority of the directors of the Corporation that are not affiliated with the applicable stockholder or stockholder affiliate, or (ii)(A) with respect to customary director indemnification agreements, (B) with respect to any employee and director expense reimbursement in the ordinary course, (C) with respect to rights currently granted pursuant to or existing under (1) the Shareholders' Agreement as in effect on the date of filing of this Certificate, (2) that certain Amended and Registration Rights Agreement, dated July 22, 2014 by and among the Corporation and the stockholders party thereto, (3) this Certificate, (4) those certain subscription agreements by and between the Corporation and the stockholders party thereto as in effect on the date of the filing of this Certificate of Incorporation, or (5) reimbursement of expenses pursuant to that certain Advisory Services Agreement by and between the Corporation and Avista Capital Holdings, LP, dated as of June 7, 2010, (D) for the purchase of equity or incurrence of debt with respect to which holders of Series D Shares are permitted to exercise preemptive rights pursuant to Section 3.4 of the Shareholders' Agreement or are otherwise permitted to participate on the same terms as such affiliate, or (E) between the Corporation and an operating company in which a stockholder of the Corporation has an investment in the ordinary course and on commercially reasonable terms);

(f) on or prior to March 24, 2018, increase the number of award shares subject to issuance under any and all equity incentive plans of the Corporation above 1,637,356 shares of Common Stock in the aggregate, other than in connection with a firm commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock for the account of the Corporation to the public and expected to result in the listing of the Corporation's Common Stock on a nationally recognized stock exchange or securities market; or

(g) agree to take any of the foregoing actions.

4.6.3. In addition to any other vote required by the first sentence of Section 242(b)(2) of the DGCL, or any similar provision hereinafter enacted in law or in this Certificate, without first obtaining the written consent or affirmative vote of the holders of the majority of the issued and outstanding shares of Series B Preferred Stock voting together as a separate class (the "Series B Majority"), except in connection with a Liquidity Event or Drag-Along Sale in which (in each case) the Available Assets are distributed in accordance with this Certificate as in effect prior to such amendment or other

action, the Corporation shall not (by merger, consolidation, reorganization, recapitalization, reclassification or otherwise) amend the Corporation's Certificate of Incorporation or take any other action (except as otherwise permitted or contemplated herein or in the Shareholders' Agreement) so as to amend, alter or repeal the

powers, preferences or special rights of the Series B Preferred Stock in a manner that affects them adversely and disproportionately (determined after considering and taking into account the relative rights and preferences of each of the classes and series of Corporation stock as compared to each other); it being understood that and acknowledged that an increase in the authorized capital stock of the Corporation (including the authorization and issuance of securities senior to existing preferred stock) shall not be deemed to be an adverse or disproportionate amendment or alteration within the meaning of this Section 4.6.3.

4.6.4. In addition to any other vote required by the first sentence of Section 242(b)(2) of the DGCL, or any similar provision hereinafter enacted in law or in this Certificate, without first obtaining the written consent or affirmative vote of the holders of the majority of the issued and outstanding shares of Series A Preferred Stock voting together as a separate class (the "Series A Majority"), except in connection with a Liquidity Event or Drag-Along Sale (as defined in the Shareholders' Agreement) in which (in each case) the Available Assets are distributed in accordance with this Certificate as in effect prior to such amendment or other action, the Corporation shall not (by merger, consolidation, reorganization, recapitalization, reclassification or otherwise) amend the Corporation's Certificate of Incorporation or take any other action (except as otherwise permitted or contemplated herein or in the Shareholders' Agreement) so as to amend, alter or repeal the powers, preferences or special rights of the Series A Preferred Stock in a manner that affects them adversely and disproportionately (determined after considering and taking into account the relative rights and preferences of each of the classes and series of Corporation stock as compared to each other); it being understood that and acknowledged that an increase in the authorized capital stock of the Corporation (including the authorization and issuance of securities senior to existing preferred stock) shall not be deemed to be an adverse or disproportionate amendment or alteration within the meaning of this Section 4.6.4.

4.7. Conversion. The holders of Preferred Stock shall have the rights and be subject to the obligations set forth in this Section 4.7 with respect to the conversion of such shares into shares of Common Stock (the "Conversion Rights").

4.7.1. Right to Convert.

(a) Series A Conversion Price. The conversion price at which a share of Common Stock shall be deliverable upon conversion of a share of Series A Preferred Stock without the payment of any additional consideration by the holder thereof shall be referred to herein as the "Series A Conversion Price." As used herein, the "Applicable Conversion Price" with respect to the Series A Preferred Stock shall be the Series A Conversion Price. The initial Series A Conversion Price shall be the Series A Original Issue Price. The Series A Conversion Price shall be subject to adjustment as hereinafter provided.

(b) Series B-1 Conversion Price. The conversion price at which a share of Common Stock shall be deliverable upon conversion of a share of Series B-1 Preferred Stock without the payment of any additional consideration by the holder thereof shall be referred to herein as the "Series B-1 Conversion Price." As used herein, the "Applicable Conversion Price" with respect to the Series B-1 Preferred Stock shall be the Series B-1 Conversion Price.

The initial Series B-1 Conversion Price shall be the Series B-1 Original Issue Price. The Series B-1 Conversion Price shall be subject to adjustment as hereinafter provided.

(c) Series B-2 Conversion Price. The conversion price at which a share of Common Stock shall be deliverable upon conversion of a share of Series B-2 Preferred Stock without the payment of any additional consideration by the holder thereof shall be referred to herein as the "Series B-2 Conversion Price." As used herein, the "Applicable Conversion Price" with respect to the Series B-2 Preferred Stock shall be the Series B-2 Conversion Price. The initial Series B-2 Conversion Price shall be the Series B-2 Original Issue Price. The Series B-2 Conversion Price shall be subject to adjustment as hereinafter provided.

(d) Series C Conversion Price. The conversion price at which a share of Common Stock shall be deliverable upon conversion of a share of Series C Preferred Stock without the payment of any additional consideration by the holder thereof shall be referred to herein as the "Series C Conversion Price." As used herein, the "Applicable Conversion Price" with respect to the Series C Preferred Stock shall be the Series C Conversion Price. The initial Series C Conversion Price shall be the Series C Original Issue Price. The Series C Conversion Price shall be subject to adjustment as hereinafter provided.

(e) Series C-1 Conversion Price. The conversion price at which a share of Common Stock shall be deliverable upon conversion of a share of Series C-1 Preferred Stock without the payment of any additional consideration by the holder thereof shall be referred to herein as the "Series C-1 Conversion Price." As used herein, the "Applicable Conversion Price" with respect to the Series C-1 Preferred Stock shall be the Series C-1 Conversion Price. The initial Series C-1 Conversion Price shall be the Series C-1 Original Issue Price. The Series C-1 Conversion Price shall be subject to adjustment as hereinafter provided.

(f) Series C-2 Conversion Price. The conversion price at which a share of Common Stock shall be deliverable upon conversion of a share of Series C-2 Preferred Stock without the payment of any additional consideration by the holder thereof shall be referred to herein as the "Series C-2 Conversion Price." As used herein, the "Applicable Conversion Price" with respect to the Series C-2 Preferred Stock shall be the Series C-2 Conversion Price. The initial Series C-2 Conversion Price shall be the Series C-2 Original Issue Price. The Series C-2 Conversion Price shall be subject to adjustment as hereinafter provided.

(g) Series D Conversion Price. The conversion price at which a share of Common Stock shall be deliverable upon conversion of a share of Series D Preferred Stock without the payment of any additional consideration by the holder thereof shall be referred to herein as the "Series D Conversion Price." As used herein, the "Applicable Conversion Price" with respect to the Series D Preferred Stock shall be the Series D

Conversion Price. The initial Series D Conversion Price shall be the Series D Original Issue Price. The Series D Conversion Price shall be subject to adjustment as hereinafter provided.

(h) Series A Preferred Stock Conversion. Each share of Series A Preferred Stock shall be convertible, without the payment of any additional consideration by the holder thereof and at the option of the holder thereof, at any time after the date of issuance of such share, at the office of the Corporation or any transfer agent for the Series A Preferred Stock,

into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (A) the Series A Original Issue Price by (B) the Series A Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(i) Series B-1 Preferred Stock Conversion. Each share of Series B-1 Preferred Stock shall be convertible, without the payment of any additional consideration by the holder thereof and at the option of the holder thereof, at any time after the date of issuance of such share, at the office of the Corporation or any transfer agent for the Series B-1 Preferred Stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (A) the Series B-1 Original Issue Price by (B) the Series B-1 Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(j) Series B-2 Preferred Stock Conversion. Each share of Series B-2 Preferred Stock shall be convertible, without the payment of any additional consideration by the holder thereof and at the option of the holder thereof, at any time after the date of issuance of such share, at the office of the Corporation or any transfer agent for the Series B-2 Preferred Stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (A) the Series B-2 Original Issue Price by (B) the Series B-2 Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(k) Series C Preferred Stock Conversion. Each share of Series C Preferred Stock shall be convertible, without the payment of any additional consideration by the holder thereof and at the option of the holder thereof, at any time after the date of issuance of such share, at the office of the Corporation or any transfer agent for the Series C Preferred Stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (A) the Series C Original Issue Price by (B) the Series C Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(l) Series C-1 Preferred Stock Conversion. Each share of Series C-1 Preferred Stock shall be convertible, without the payment of any additional consideration by the holder thereof and at the option of the holder thereof, at any time after the date of issuance of such share, at the office of the Corporation or any transfer agent for the Series C-1 Preferred Stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (A) the Series C-1 Original Issue Price by (B) the Series C-1 Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(m) Series C-2 Preferred Stock Conversion. Each share of Series C-2 Preferred Stock shall be convertible, without the payment of any additional consideration by the holder thereof and at the option of the holder thereof, at any time after the date of issuance of such share, at the office of the Corporation or any transfer agent for the Series C-2 Preferred Stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (A) the Series C-2 Original Issue Price by (B) the Series C-2 Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(n) Series D Preferred Stock Conversion. Each share of Series D Preferred Stock shall be convertible, without the payment of any additional consideration by the holder thereof and at the option of the holder thereof, at any time after the date of issuance of

such share, at the office of the Corporation or any transfer agent for the Series D Preferred Stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (A) the Series D Original Issue Price by (B) the Series D Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(o) Termination of Conversion Right. The right of conversion with respect to any shares of Preferred Stock which shall have been called for redemption under Section 4.8 hereof shall terminate at the close of business on the day fixed for redemption unless the Corporation shall default in the payment of the Series D Redemption Price, Series C-2 Redemption Price, Series C-1 Redemption Price, Series C Redemption Price, Series B Redemption Price or Series A Redemption Price (each as defined in Section 4.8), as applicable, in which case, the right of conversion with respect to such shares shall continue unless and until such the Series D Redemption Price, Series C-2 Redemption Price, Series C-1 Redemption Price, Series C Redemption Price, Series B Redemption Price or Series A Redemption Price (each as defined in Section 4.8), as applicable, is paid in full.

4.7.2. Automatic Conversion.

(a) Upon the occurrence of a Mandatory Conversion Event (as defined below), each share of Series A Preferred Stock shall be converted, without the payment of any additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (A) the Series A Original Issue Price by (B) the Series A Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(b) Upon the occurrence of a Mandatory Conversion Event, each share of Series B-1 Preferred Stock shall be converted, without the payment of any additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (A) the Series B-1 Original Issue Price by (B) the Series B-1 Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(c) Upon the occurrence of a Mandatory Conversion Event, each share of Series B-2 Preferred Stock shall be converted, without the payment of any additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Common Stock as is

determined by dividing (A) the Series B-2 Original Issue Price by (B) the Series B-2 Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(d) Upon the occurrence of a Mandatory Conversion Event, each share of Series C Preferred Stock shall be converted, without the payment of any additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (A) the Series C Original Issue Price by (B) the Series C Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(e) Upon the occurrence of a Mandatory Conversion Event, each share of Series C-1 Preferred Stock shall be converted, without the payment of any additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (A) the Series C-1 Original Issue Price by (B) the Series C-1 Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(f) Upon the occurrence of a Mandatory Conversion Event, each share of Series C-2 Preferred Stock shall be converted, without the payment of any additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (A) the Series C-2 Original Issue Price by (B) the Series C-2 Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(g) Upon the occurrence of a Mandatory Conversion Event, each share of Series D Preferred Stock shall be converted, without the payment of any additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing (A) the Series D Original Issue Price by (B) the Series D Conversion Price, determined as hereinafter provided, in effect at the time of conversion.

(h) The occurrence of any of the following events shall be a "Mandatory Conversion Event":

(i) with respect to the mandatory conversion of the Preferred Stock, the closing of a firm commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock for the account of the Corporation to the public and resulting in the listing of the Corporation's Common Stock on a nationally recognized stock exchange or securities market; and

(ii) with respect to the mandatory conversion of the Preferred Stock (other than the Series D Preferred Stock), the effective date of a written election of holders of Preferred Stock representing at least a Preferred Supermajority, and with respect to the mandatory conversion of the Series D Preferred Stock, the effective date of a written election of holders of the Series D Majority.

4.7.3. Mechanics of Automatic Conversions. Upon the occurrence of a Mandatory Conversion Event, the Preferred Stock (including or excluding the Series D Preferred Stock, as applicable) shall be converted automatically without any further action by the holders thereof and whether or not the certificates representing such shares are surrendered to the Corporation or its transfer agent; provided, however, that all holders of shares of Preferred Stock being converted shall be given written notice of the occurrence of the event specified in Section 4.7.2 triggering such conversion, including the date such event occurred (the "Mandatory Conversion Date"). On the Mandatory Conversion Date, all rights with respect to the Preferred Stock so converted shall terminate, except any of the rights of the holder thereof to receive certificates for the number of shares of Common Stock into which such Preferred Stock has been

converted. Upon the automatic conversion of the Preferred Stock, the holders of the Preferred Stock shall surrender the certificates representing such shares or a lost certificate affidavit and unsecured indemnity reasonably acceptable to the Corporation ("Lost Certificate Affidavit") at the office of the Corporation or of its transfer agent. If so required by the Corporation, certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form reasonably satisfactory to the Corporation, duly executed by the registered holder or by the holder's attorney duly authorized in writing. Upon surrender of such certificates (or Lost Certificate Affidavit) there shall be issued and delivered to such holder, or to such holder's nominee or nominees promptly at such office, a certificate or certificates for the number of shares of Common Stock into which the shares of the Preferred Stock surrendered were convertible on the date on which such automatic conversion occurred. Upon the automatic conversion of the Preferred Stock, all shares of Preferred Stock being converted by any holder thereof shall be aggregated for the purpose of determining the number of shares of Common Stock to which such holder shall be entitled, and no fractional share of Common Stock shall be issued. In lieu of any fractional share to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of the Common Stock on the Mandatory Conversion Date, as reasonably determined by the Board of Directors in good faith.

4.7.4. Mechanics of Optional Conversions. Before any holder of Preferred Stock shall be entitled to convert the same into shares of Common Stock, the holder shall surrender the certificate or certificates therefor (or Lost Certificate Affidavit) at the office of the Corporation or of any transfer agent for the Preferred Stock, and shall give written notice to the Corporation at such office that the holder elects to convert the same and shall state therein the holder's name or the name or names of the holder's nominees in which the holder wishes the certificate or certificates for shares of Common Stock to be issued. On the date of conversion, all rights with respect to the Preferred Stock so converted shall terminate, except any of the rights of the holder thereof, upon surrender of the holder's certificate or certificates therefor (or Lost Certificate Affidavit), to receive certificates for the number of shares of Common Stock into which such Preferred Stock has been converted. If so required by the Corporation, certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form reasonably satisfactory to the Corporation, duly executed by the registered holder or by the holder's attorney duly authorized in writing. Upon the optional conversion of the Preferred Stock, all shares of Preferred Stock being converted by any holder thereof shall be aggregated for the purpose of determining the number of shares of Common Stock to which such holder shall be entitled, and no fractional share of Common Stock shall be issued. In lieu of any fractional share to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of the Common Stock on the date of conversion, as reasonably determined by the Board of Directors in good faith. The Corporation shall, promptly after surrender of the certificate or certificates for conversion, issue and deliver at such office to such holder of Preferred Stock, or to the holder's nominee or nominees, a certificate or certificates for the number of shares of

Common Stock to which the holder shall be entitled as aforesaid, together with cash in lieu of any fraction of a share. Unless otherwise specified by the holder in the written notice of conversion, such conversion shall be deemed to have been made immediately prior to the close of business on the date of such surrender of the shares of Preferred Stock to be converted, and the person or persons

entitled to receive the shares of Common Stock issuable upon conversion shall be treated for all purposes as the record holder or holders of such shares of Common Stock on such date.

4.7.5. Adjustments to Conversion Price for Diluting Issues.

(a) Special Definitions. For purposes of this Certificate, the following definitions shall apply:

(i) "Additional Shares of Common Stock" shall mean all shares of Common Stock issued (or, pursuant to Section 4.7.5(h) deemed to be issued) by the Corporation after the Series D Financing Date other than:

(A) shares of Common Stock issued or issuable upon conversion of shares of Preferred Stock;

(B) shares of Common Stock issued or issuable to employees, consultants or directors of the Corporation under a stock purchase, restricted stock, stock option plan or other employee stock bonus arrangement in existence on the Series D Financing Date or thereafter approved by the Board of Directors, which majority includes the affirmative vote of a majority of the Investor Directors then in office, if any; and provided that such number of shares of Common Stock may be adjusted upward by the vote of a majority of the members of the Board of Directors of the Corporation, which majority includes the affirmative vote of a majority of the Investor Directors then in office, if any;

(C) shares of Series D Preferred Stock issued or issuable pursuant to the Series D Subscription Agreement (as defined below);

(D) shares of Common Stock issued to employees, officers, directors, consultants, customers or suppliers (including in connection with bona fide licensing, commercial or other strategic arrangements) of the Corporation or any subsidiary pursuant to employee benefit, incentive or similar plans or agreements or arrangements of the Corporation;

(E) shares of Common Stock issued to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction;

(F) shares of Common Stock issued in a firm commitment underwritten public offering;

(G) shares of Common Stock issued as consideration for the acquisition of another corporation by merger or an acquisition by the Corporation of substantially all of the assets or other reorganization or to a joint venture agreement;

(H) shares of Common Stock issued as consideration for sponsored research, collaboration, technology license, development, OEM, marketing or other similar agreements or strategic partnerships approved; and

(ii) "Option" shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire either Common Stock or Convertible Securities.

(iii) "Preferred Supermajority" shall mean holders of at least seventy-five percent (75%) of the issued and outstanding shares of the Preferred Stock (other than the Series D Preferred Stock) voting together as a single class on an as-converted basis.

(iv) "Series D Financing Date" shall mean March 24, 2017.

(v) "Series D Subscription Agreement" shall mean that certain Series D Subscription Agreement between the Corporation and the investors party thereto, dated as of March 24, 2017, and as amended from time to time.

(vi) "Convertible Securities" shall mean any evidences of indebtedness, shares of capital stock (other than Common Stock) or other securities directly or indirectly convertible into or exchangeable for Common Stock.

(b) No Adjustment of Series A Conversion Price. Except as set forth in Section 4.7.5(k), no adjustment in the number of shares of Common Stock into which the shares of Series A Preferred Stock are convertible shall be made, by adjustment in the Series A Conversion Price in respect of the issuance of Additional Shares of Common Stock, (a) unless the consideration per share for an Additional Share of Common Stock (determined pursuant to Section 4.7.5(j)) issued or deemed to be issued by the Corporation is less than the Series A Conversion Price in effect on the date of, and immediately prior to, the issue of such Additional Share of Common Stock or (b) if prior to such issuance or within twenty (20) days thereafter the Corporation receives notice from the holders of at least a majority of the outstanding shares of Series A Preferred Stock voting together as a separate class that no such adjustment in the Series A Conversion Price shall be made.

(c) No Adjustment of Series B-1 or B-2 Conversion Price. Except as set forth in Section 4.7.5(k), no adjustment in the number of shares of Common Stock into which the shares of Series B Preferred Stock are convertible shall be made, by adjustment in the Series B-1 Conversion Price or Series B-2 Conversion Price in respect of the issuance of Additional Shares of Common Stock, (a) unless the consideration per share for an Additional Share of Common Stock (determined pursuant to Section 4.7.5(j)) issued or deemed to be issued by the Corporation is less than the Series B-1 Conversion Price or Series B-2 Conversion Price, respectively, in effect on the date of, and immediately prior to, the issue of such Additional Share of Common Stock or (b) if prior to such issuance or within twenty (20) days thereafter the Corporation receives notice from the holders of at least a majority of

the outstanding shares of Series B Preferred Stock voting together as a separate class that no such adjustment in the Series B-1 Conversion Price and Series B-2 Conversion Price shall be made.

(d) No Adjustment of Series C Conversion Price. Except as set forth in Section 4.7.5(k), no adjustment in the number of shares of Common Stock into which the shares of Series C Preferred Stock are convertible shall be made, by adjustment in the Series C

Conversion Price in respect of the issuance of Additional Shares of Common Stock, (a) unless the consideration per share for an Additional Share of Common Stock (determined pursuant to Section 4.7.5(j)) issued or deemed to be issued by the Corporation is less than the Series C Conversion Price in effect on the date of, and immediately prior to, the issue of such Additional Share of Common Stock or (b) if prior to such issuance or within twenty (20) days thereafter the Corporation receives notice from a majority of the outstanding shares of Series C Preferred Stock voting together as a separate class that no such adjustment in the Series C Conversion Price shall be made.

(e) No Adjustment of Series C-1 Conversion Price. Except as set forth in Section 4.7.5(k), no adjustment in the number of shares of Common Stock into which the shares of Series C-1 Preferred Stock are convertible shall be made, by adjustment in the Series C-1 Conversion Price in respect of the issuance of Additional Shares of Common Stock, (a) unless the consideration per share for an Additional Share of Common Stock (determined pursuant to Section 4.7.5(j)) issued or deemed to be issued by the Corporation is less than the Series C-1 Conversion Price in effect on the date of, and immediately prior to, the issue of such Additional Share of Common Stock or (b) if prior to such issuance or within twenty (20) days thereafter the Corporation receives notice from a majority of the outstanding shares of Series C-1 Preferred Stock voting together as a separate class that no such adjustment in the Series C-1 Conversion Price shall be made.

(f) No Adjustment of Series C-2 Conversion Price. Except as set forth in Section 4.7.5(k), no adjustment in the number of shares of Common Stock into which the shares of Series C-2 Preferred Stock are convertible shall be made, by adjustment in the Series C-2 Conversion Price in respect of the issuance of Additional Shares of Common Stock, (a) unless the consideration per share for an Additional Share of Common Stock (determined pursuant to Section 4.7.5(j)) issued or deemed to be issued by the Corporation is less than the Series C-2 Conversion Price in effect on the date of, and immediately prior to, the issue of such Additional Share of Common Stock or (b) if prior to such issuance or within twenty (20) days thereafter the Corporation receives notice from a majority of the outstanding shares of Series C-2 Preferred Stock voting together as a separate class that no such adjustment in the Series C-2 Conversion Price shall be made.

(g) No Adjustment of Series D Conversion Price. Except as set forth in Section 4.7.5(k), no adjustment in the number of shares of Common Stock into which the shares of Series D Preferred Stock are convertible shall be made, by adjustment in the Series D Conversion Price in respect of the issuance of Additional Shares of Common Stock, (a) unless the consideration per share for an Additional Share of Common Stock (determined pursuant to Section 4.7.5(j)) issued or deemed to be issued by the Corporation is less than the Series D Conversion Price in effect on the date of, and immediately prior to, the issue of such Additional Share of Common Stock or (b) if prior to such issuance or within twenty (20) days thereafter the Corporation receives notice from a Series D Majority that no such adjustment in the Series D Conversion Price shall be made.

(h) Issue of Securities Deemed Issue of Additional Shares of Common Stock.

(i) Options and Convertible Securities. In the event the Corporation at any time or from time to time shall issue any Options or Convertible Securities (excluding for all purposes of this Section 4.7.5(h)(i) Options and Convertible Securities excluded from the definition of Additional Shares of Common Stock in Section 4.7.5(a)(i)(B)) then the maximum number of shares (as set forth in the instrument relating thereto without regard to any provisions contained therein for a subsequent adjustment of such number) of Common Stock issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date, provided that in any such case in which Additional Shares of Common Stock are deemed to be issued:

(1) no further adjustment in the Applicable Conversion Price shall be made upon the subsequent issue of Convertible Securities or shares of Common Stock upon the exercise of such Options or conversion or exchange of such Convertible Securities;

(2) if such Options or Convertible Securities by their terms provide, or are amended to provide, with the passage of time or otherwise, for any decrease in the consideration payable to the Corporation, or increase in the number of shares of Common Stock issuable, upon the exercise, conversion or exchange thereof, the Applicable Conversion Price, computed upon the original issue thereof (or upon the occurrence of a record date with respect thereto), and any subsequent adjustments based thereon, shall, upon any such decrease or increase becoming effective, be recomputed to reflect such decrease or increase insofar as it affects such Options or the rights of conversion or exchange under such Convertible Securities;

(3) upon the expiration of any such Options or any rights of conversion or exchange under such Convertible Securities which shall not have been exercised, the Applicable Conversion Price, computed upon the original issue thereof (or upon the occurrence of a record date with respect thereto), and any subsequent adjustments based thereon, shall, upon such expiration, be recomputed as if:

a. in the case of Convertible Securities or Options for Common Stock, the only Additional Shares of Common Stock issued were the shares of Common Stock, if any, actually issued upon the exercise of such Options or the conversion or exchange of such Convertible Securities and the consideration received therefor was the consideration actually received by the Corporation for the issue of all such Options, whether or not exercised, plus the consideration actually received by the Corporation upon such exercise, or for the issue of all such Convertible Securities which were actually converted or exchanged, plus the additional consideration, if any, actually received by the Corporation upon such conversion or exchange; and

b. in the case of Options for Convertible Securities, only the Convertible Securities, if any, actually issued upon the exercise thereof were issued at the time of issue of such Options, and the consideration received by the

Corporation for the Additional Shares of Common Stock deemed to have been then issued was the consideration actually received by the Corporation for the issue of all such Options, whether or not exercised, plus the consideration deemed to have been received by the Corporation (determined pursuant to Section 4.7.5(j)) upon the issue of the Convertible Securities with respect to which such Options were actually exercised;

(4) if the terms of any Option or Convertible Security (excluding Options or Convertible Securities excluded from the definition of Additional Shares of Common Stock by Section 4.7.5(a)(i)(B)), the issuance of which did not result in an adjustment to the Applicable Conversion Price pursuant to the terms of Section 4.7.5(i) below (either because the consideration per share (determined pursuant to Section 4.7.5(j) hereof) of the Additional Shares of Common Stock subject thereto was equal to or greater than the Applicable Conversion Price then in effect, or because such Option or Convertible Security was issued before the Series D Financing Date), are revised after the Series D Financing Date (either automatically pursuant to the provisions contained therein or as a result of an amendment to such terms) to provide for any decrease in the consideration payable to the Corporation, or increase in the number of shares of Common Stock issuable, upon the exercise, conversion or exchange thereof, then such Option or Convertible Security, as so amended, and the Additional Shares of Common Stock subject thereto (determined in the manner provided in this Section 4.7.5(h)(i)) shall be deemed to have been issued effective upon such increase or decrease becoming effective;

(5) no readjustment pursuant to clause (2), (3) or (4) of this Section 4.7.5(h)(i) shall have the effect of increasing the Applicable Conversion Price to an amount which exceeds the lower of (i) the Applicable Conversion Price on the original adjustment date, or (ii) the Applicable Conversion Price that would have resulted from any issuance of Additional Shares of Common Stock between the original adjustment date and such readjustment date;

(6) if such record date shall have been fixed and such Options or Convertible Securities are not issued on the date fixed therefor, the adjustment previously made in the Applicable Conversion Price which became effective on such record date shall be canceled as of the close of business on such record date, and thereafter the Applicable Conversion Price shall be adjusted pursuant to this Section 4.7.5(h) as of the actual date of their issuance.

(ii) Stock Dividends, Stock Distributions and Subdivisions. In the event the Corporation at any time or from time to time shall declare or pay any dividend or make any other distribution on the Common Stock payable in Common Stock or effect a subdivision of the outstanding shares of Common Stock (by reclassification or otherwise than by payment of a dividend in Common Stock), then and in any such event, Additional Shares of Common Stock shall be deemed to have been issued:

(A) in the case of any such dividend or distribution, immediately after the close of business on the record date for the determination of holders of any class of securities entitled to receive such dividend or distribution, or

(B) in the case of any such subdivision, at the close of business on the date immediately prior to the date upon which such corporate action becomes effective.

If such record date shall have been fixed and no part of such dividend or distribution shall have been paid on the date fixed therefor, the adjustment previously made in the Applicable Conversion Price, which became effective on such record date shall be canceled as of the close of business on such record date, and thereafter the Applicable Conversion Price shall be adjusted pursuant to this Section 4.7.5(h) as of the time of actual payment of such dividend or distribution.

(i) Adjustment of Conversion Price Upon Issuance of Additional Shares of Common Stock. In the event that at any time or from time to time, the Corporation shall issue Additional Shares of Common Stock after the Series D Financing Date (including, without limitation, Additional Shares of Common Stock deemed to be issued pursuant to Section 4.7.5(h)(i) but excluding Additional Shares of Common Stock deemed to be issued pursuant to Section 4.7.5(h)(ii), which event is dealt with in Section 4.7.5(k)(i)), without consideration or for a consideration per share less than the Applicable Conversion Price then in effect on the date of and immediately prior to such issue, then and in such event, the Applicable Conversion Price of the Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock, Series C-1 Preferred Stock, the Series C-2 Preferred Stock and the Series D Preferred Stock, in each to the extent that the per share consideration for the Additional Shares of Common Stock is less than the Applicable Conversion Price for any such series of Preferred Stock, shall be reduced, concurrently with such issue, to a price determined by multiplying such Applicable Conversion Price by a fraction, (i) the numerator of which shall be (A) the number of shares of Common Stock outstanding immediately prior to such issue plus (B) the number of shares of Common Stock which the aggregate consideration received or to be received by the Corporation for the total number of Additional Shares of Common Stock so issued would purchase at the Applicable Conversion Price; and (ii) the denominator of which shall be the number of shares of Common Stock outstanding immediately prior to such issue plus the number of such Additional Shares of Common Stock so issued; it being understood that for the purpose of this Section 4.7.5(i), all shares of Common Stock issuable upon conversion, or exercise of the shares of Preferred Stock, warrants or Options outstanding immediately prior to such issue shall be deemed to be outstanding, and the number of shares of Common Stock deemed issuable upon conversion or exchange of such outstanding Convertible Securities and Options shall not give effect to any adjustments to the conversion or exchange price or conversion or exchange rate of such Convertible Securities and Options resulting from the issuance of Additional Shares of Common Stock that is the subject of this calculation. The Applicable Conversion Price shall not be reduced pursuant to this Section 4.7.5(i) at any time if the amount of such reduction would be an amount less than $.01, but any such amount shall be carried forward and reduction with respect thereto made at the time of and together with any subsequent reduction which, together with such amount and any other amount or amounts so carried forward, shall aggregate $.01 or more.

(j) Determination of Consideration. For purposes of this Section 4.7.5, the consideration received by the Corporation for the issue of any Additional Shares of Common Stock shall be computed as follows:

(i) Cash and Property. Such consideration shall:

(A) insofar as it consists of cash, be computed as the aggregate amounts of cash received by the Corporation excluding amounts paid or payable for accrued interest or accrued dividends;

(B) insofar as it consists of property other than cash, be computed at the fair value thereof at the time of such issue, as determined in good faith by the Board of Directors; and

(C) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (A) and (B) of this Section 4.7.5(j)(i), as determined in good faith by the Board of Directors.

(ii) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Section 4.7.5(h)(i), relating to Options and Convertible Securities, shall be determined by dividing (x) the total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by (y) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities.

(k) Adjustment for Dividends, Distributions, Subdivisions, Combinations or Consolidations of Common Stock and Preferred Stock.

(i) If the Corporation shall at any time or from time to time after the Series D Financing Date effect a subdivision of the outstanding Common Stock or combine the outstanding shares of any series of Preferred Stock, the Applicable Conversion Price then in effect immediately before that subdivision or combination shall be proportionately decreased. If the Corporation shall at any time or from time to time after the Series D Financing Date combine the outstanding shares of Common Stock or effect a subdivision of the outstanding shares of a series of Preferred Stock, the Applicable Conversion Price then in effect immediately before the combination or subdivision shall be proportionately increased. Any adjustment under this paragraph shall become effective at the close of business on the date the subdivision or combination becomes effective.

(ii) In the event the Corporation at any time, or from time to time after the Series D Financing Date shall make or issue, or fix a record date for the

determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in additional shares of Common Stock, then and in each such event the Applicable Conversion Price then in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the Applicable Conversion Price then in effect by a fraction:

(A) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(B) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution; provided, however, that if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Applicable Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Applicable Conversion Price shall be adjusted pursuant to this paragraph as of the time of actual payment of such dividends or distributions; and provided further, however, that no such adjustment shall be made if the holders of Preferred Stock simultaneously receive a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of Preferred Stock had been converted into Common Stock on the date of such event.

4.7.6. Adjustment for Reclassification, Exchange, or Substitution. In the event that at any time or from time to time the Common Stock issuable upon the conversion of Preferred Stock shall be changed into the same or a different number of shares of any class or series of stock or other securities or property, whether by capital reorganization, reclassification, recapitalization or otherwise (other than a subdivision or combination of shares or stock dividend provided for above, or a merger, consolidation, or sale of assets provided for below), then and in each such event the holder of any shares of Preferred Stock shall have the right thereafter to convert such shares into the kind and amount of shares of stock and other securities and property receivable upon such reorganization, reclassification, recapitalization or other change by the holder of a number of shares of Common Stock equal to the number of shares of Common Stock into which such shares of Preferred Stock might have been converted immediately prior to such reorganization, reclassification, recapitalization or change, all subject to further adjustment as provided herein.

4.7.7. Adjustment for Merger, Consolidation or Sale of Assets. In the event that at any time or from time to time there is (a) an acquisition or exclusive license of all or substantially all of the assets or intellectual property of the Corporation (or grant, sale or transfer of a license to all or a substantial part of the Corporation's intellectual property, or any combination of licenses having the same effect), or (b) an acquisition of the Corporation by another corporation or entity by consolidation, merger, share exchange or other reorganization or combination in which the holders of the Corporation's outstanding voting stock immediately prior to such transaction own, immediately after such transaction, securities representing less

than fifty percent (50%) of the voting power of the Corporation or other entity surviving such transaction, or (c) an acquisition of the stock of the Corporation by a single person or entity or group of affiliated persons or entities (other than an acquisition of stock from the Corporation in a bona fide equity financing the purpose of which is solely to raise capital for general corporate purposes) which results in such person or entity or group holding securities representing more than fifty percent (50%) of the voting power of the Corporation, and such transaction is not treated as a Liquidity Event under Section 4.4.3, each share of the Preferred Stock shall thereafter be convertible into the kind and amount of shares of stock or other securities or property to which a holder of the number of shares of Common Stock of the Corporation deliverable upon conversion of such Preferred Stock would have been entitled to receive upon such consolidation, merger or sale, at the time of such consolidation, merger or sale; and, in such case, appropriate adjustment (as determined in good faith by the Board of Directors, including a majority of the Investor Directors) shall be made in the application of the provisions set forth in this Section 4.7 with respect to the rights and interest thereafter of the holders of shares of the Preferred Stock, to the end that the provisions set forth in this Section 4.7 (including provisions with respect to changes in and other adjustments of the Applicable Conversion Prices) shall thereafter be applicable, as nearly as reasonably may be, in relation to any shares of stock or other securities or property thereafter deliverable upon the conversion of the Preferred Stock.

4.7.8. Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of any Applicable Conversion Price pursuant to this Section 4.7, as applicable, the Corporation at its expense shall promptly compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of Preferred Stock a certificate setting forth such adjustment or readjustment and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, upon the written request at any time of any holder of Preferred Stock, furnish or cause to be furnished to such holder a certificate setting forth (i) such adjustments and readjustments, (ii) all Applicable Conversion Prices at the time in effect, and (iii) the number of shares of Common Stock and the amount, if any, of other property which at the time would be received upon the conversion of each share of Preferred Stock held by such holder.

4.7.9. Notices of Record Date. In the event of any taking by the Corporation of a record of the holders of any class or series of securities for the purpose of determining the holders thereof who are entitled to receive any dividend or other distribution, the Corporation shall mail to each holder of Preferred Stock at least ten (10) days prior to such record date a notice specifying the date on which any such record is to be taken for the purpose of such dividend or distribution.

4.7.10. Common Stock Reserved. The Corporation shall reserve and keep available, free from pre-emptive rights, out of its authorized but unissued Common Stock, solely for the purpose of effecting the conversion of the Preferred Stock, such number of shares of Common Stock as shall from time to time be sufficient to effect conversion of all of the Preferred Stock. If at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all the then outstanding shares of Preferred Stock, the Corporation shall promptly take such corporate action as may, in the opinion of its counsel, be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purpose.

4.7.11. Certain Taxes. The Corporation shall pay any issue or transfer taxes payable in connection with the conversion of Preferred Stock, provided, however, that the Corporation shall not be required to pay any tax which may be payable in respect of any transfer to a name other than that of the holder of Preferred Stock.

4.7.12. Closing of Books. The Corporation shall at no time close its transfer books against the transfer of any Preferred Stock or of any shares of Common Stock issued or issuable upon the conversion of any shares of Preferred Stock in any manner which interferes with the timely conversion or transfer of such Preferred Stock or Common Stock.

4.7.13. Validity of Shares. The Corporation agrees that it will from time to time take all such actions as may be required to assure that all shares of Common Stock which may be issued upon conversion of Preferred Stock will, upon issuance, be legally and validly issued, fully paid and nonassessable and free from all taxes, liens and charges with respect to the issue thereof.

4.8. Redemption.

4.8.1. Election. At the written election (the "Series C Election") of the holders of a majority of the Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock, voting on a combined basis as a single class, made at any time after March 24, 2020, the Corporation shall call for redemption, and shall redeem out of funds lawfully available therefore all the outstanding shares of Preferred Stock (other than any shares of Series D Preferred Stock that the holder(s) of which has elected not to have redeemed hereunder) at a redemption price per share (in all cases, appropriately adjusted to take account of any stock dividend, stock split, combination of shares, reclassification or other similar event with respect to the Preferred Stock) as follows:

(a) with respect to the Series D Preferred Stock, equal to the sum of (A) the Series D Minimum Liquidation Preference plus (B) any declared but unpaid dividends on such share of Series D Preferred Stock (the "Series D Redemption Price"). For avoidance of doubt, each holder of the Series D Preferred Stock may elect to, but shall not be required to, participate in the redemption of their shares of Series D Preferred Stock as set forth in this Section 4.8;

(b) with respect to the Series C-2 Preferred Stock, equal to the sum of (A) the Series C-2 Minimum Liquidation Preference plus (B) any declared but unpaid dividends on such share of Series C-2 Preferred Stock (the "Series C-2 Redemption Price");

(c) with respect to the Series C-1 Preferred Stock, equal to the sum of (A) the Series C-1 Minimum Liquidation Preference plus (B) any declared but unpaid dividends on such share of Series C-1 Preferred Stock (the "Series C-1 Redemption Price");

(d) with respect to the Series C Preferred Stock, equal to the sum of (A) the Series C Minimum Liquidation Preference plus (B) any declared but unpaid dividends on such share of Series C Preferred Stock (the "Series C Redemption Price");

(e) with respect to the Series B Preferred Stock, equal to the Series B Liquidation Preference (the "Series B Redemption Price"); and

(f) with respect to the Series A Preferred Stock, equal to the Series A Liquidation Preference (the "Series A Redemption Price," and with the Series D Redemption Price, the Series C-2 Redemption Price, the Series C-1 Redemption Price, the Series C Redemption Price and the Series B Redemption Price, the "Redemption Price").

4.8.2. The Preferred Stock shall be redeemed on the date that is thirty (30) days following receipt by the Corporation of the Series C Election (the "Redemption Date").

4.8.3. Notice of Redemption. If a Series C Election is delivered to the Corporation, then, at least thirty (30) days prior to the Redemption Date, the Corporation shall provide written notice (the "Redemption Notice") to all holders of Preferred Stock entitled to redemption under this Section 4.8. Such Redemption Notice shall set forth (i) the date and place of redemption; (ii) the number of shares to be redeemed; and (iii) the applicable Redemption Price(s). The Corporation shall credit against the number of shares of Preferred Stock required to be redeemed from the holder of such Preferred Stock, and shall not redeem, the number of shares of Preferred Stock called for redemption which have been converted by such holder on or before the Redemption Date.

4.8.4. Surrender of Certificates; Payment. On or before the applicable Redemption Date, each holder of shares of Preferred Stock to be redeemed on such Redemption Date, unless such holder has exercised his, her or its right to convert such shares, shall surrender the certificate or certificates representing such shares (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation, in the manner and at the place designated in the Redemption Notice, and thereupon the applicable Redemption Price(s) for such shares shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof. In the event less than all of the shares of Preferred Stock represented by a certificate are redeemed, a new certificate representing the unredeemed shares of Preferred Stock shall promptly be issued to such holder.

4.8.5. Procedures. If, on or before the Redemption Date, the funds necessary for such redemption shall have been set aside by the Corporation and deposited with a bank or trust company, in trust for the pro rata benefit of the holders of the Preferred Stock that has been called for redemption, then, notwithstanding that any certificates for shares that have been called for redemption shall not have been surrendered for cancellation, the shares represented thereby shall no longer be deemed outstanding from and after the Redemption Date, and all rights of holders of such shares so called for redemption shall forthwith, after the Redemption Date, cease and terminate with respect to such shares, excepting only the right to receive the applicable Redemption Price(s) to which they are entitled. Any interest accrued on funds so deposited and unclaimed by stockholders entitled thereto shall be paid to such stockholders at the time their respective shares are redeemed or to the Corporation at the time unclaimed amounts are paid to it. In case the holders of Preferred Stock which shall have been

called for redemption shall not, within three (3) years after the Redemption Date, claim the amounts so deposited with respect to the redemption thereof, any such bank or trust company shall, upon demand, pay over to the Corporation such unclaimed amounts and thereupon such bank or trust company shall be relieved of all responsibility in respect thereof to such holder and such holder shall look only to the Corporation for the payment thereof. Any funds so deposited with a bank or trust company which shall not be required for such redemption by reason of the exercise subsequent to the date of such deposit of the right of conversion of any shares or otherwise shall be returned to the Corporation forthwith.

4.8.6. Defaults. If the Corporation for any reason defaults on its obligation to redeem any of the shares of Preferred Stock in accordance with Section 4.8 on or prior to the applicable Redemption Dates specified therein, then, notwithstanding anything to the contrary contained in this Certificate, the Corporation may not incur any indebtedness (unless the proceeds of such incurrence of indebtedness are used to make all overdue redemptions) without the prior affirmative vote or written consent of the holders of (x) at least a Preferred Supermajority of the then-outstanding shares of Preferred Stock and (y) a Series D Majority, other than borrowings or reborrowings under then-outstanding lines of credit with institutional lenders and within then-existing credit limits, or under replacement line of credit facilities with institutional lenders with no greater credit limits, solely for the purposes of working capital.

4.8.7. Insufficient Funds. If the funds of the Corporation legally available for redemption of shares of Preferred Stock on the Redemption Date are less than the aggregate Series D Minimum Liquidation Preference, plus the aggregate Series C-2 Minimum Liquidation Preference, plus the aggregate Series C-1 Minimum Liquidation Preference, plus the aggregate Series C Minimum Liquidation Preference, then the holders of Series D Preferred Stock shall receive an amount equal to the funds then legally available for redemption of shares of Preferred Stock multiplied by the Series D Distribution Ratio, the holders of Series C-2 Preferred Stock shall receive an amount equal to the funds then legally available for redemption of shares of Preferred Stock multiplied by the Series C-2 Distribution Ratio, the holders of Series C-1 Preferred Stock shall receive an amount equal to the funds then legally available for redemption of shares of Preferred Stock multiplied by the Series C-1 Distribution Ratio, and the holders of Series C Preferred Stock shall receive an amount equal to the funds then legally available for redemption of shares of Preferred Stock multiplied by the Series C Distribution Ratio. At any time thereafter when additional funds of the Corporation are legally available for the redemption of such shares of Preferred Stock, such funds will be used to redeem the remaining balance of any shares of Preferred Stock that were required to be redeemed at the Redemption Date.

4.8.8. Notice. Within sixty (60) days of the date on which all then outstanding shares of Preferred Stock have been redeemed and payment in full of the applicable Redemption Price(s) has been made to the holders thereof (the "Redemption Completion Date"), the Corporation shall send written notice of the date of the occurrence thereof to all holders of then outstanding shares of Common Stock.

4.9. Preemptive Rights. Other than as set forth in the Shareholders' Agreement, the holders of Preferred Stock shall have no preemptive rights.

4.10. No Reissuance of Preferred Stock. No shares of Preferred Stock acquired by the Corporation by reason of redemption, purchase, conversion or otherwise shall be reissued, and all such shares shall be canceled, retired and eliminated from the shares which the Corporation shall be authorized to issue.

4.11. Residual Rights. All rights accruing to the outstanding shares of the Corporation not expressly provided for to the contrary herein shall be vested in the Common Stock.

ARTICLE 5

5.1. Notices. All notices to any party required or permitted to be sent pursuant to Article 5 hereof ("Notices") shall be contained in a written instrument addressed to such party at such party's address as it appears on the books of the Corporation or such other address as may hereafter be designated in writing by the addressee to the addressor listing all parties and shall be deemed given (a) when delivered in person or duly sent by facsimile transmission showing confirmation of receipt, (b) on the earlier of (i) the day of delivery or (ii) three (3) business days after being duly sent by first class United States overnight express mail, postage prepaid and return receipt requested (other than in the case of Notices to or from any non-United States resident, which Notices must be sent in the manner specified in clause (a) or (c)), or (c) three (3) business days after being duly sent by DHL, Federal Express or other recognized express international courier service.

ARTICLE 6

The Corporation is to have perpetual existence.

ARTICLE 7

In furtherance and not in limitation of the powers conferred by statute, the Board of Directors of the Corporation is authorized to adopt, amend or repeal the Bylaws of the Corporation, except as otherwise specifically provided therein.

ARTICLE 8

8.1. Indemnification. The Corporation shall indemnify and hold harmless each person who at any time is, or shall have been, a director or officer of the Corporation and was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he or she is or was a director or officer of the Corporation, or is or was serving at the request of the Corporation as a director, officer, employee, or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement incurred in connection with any such action, suit or proceeding, to the maximum extent permitted by the General Corporation Law of the State of Delaware, as the same exists or may hereafter be amended. In furtherance of and not in limitation of the foregoing, the Corporation shall advance expenses, including attorneys' fees, incurred by a director or officer of the Corporation in defending any civil, criminal, administrative or investigative action, suit or proceeding in advance of the final disposition of

such action, suit or proceeding upon receipt of an undertaking by or on behalf of such director or officer to repay such advances if it shall ultimately be determined that he is not entitled to be indemnified by the Corporation. The foregoing right of indemnification shall in no way be exclusive of any other rights of indemnification to which any such director or officer may be entitled, under any by-law, agreement, vote of directors or stockholders or otherwise. No amendment to or repeal of the provisions of this Article 8 shall deprive a director or officer of the benefit hereof with respect to any act or failure to act occurring prior to such amendment or repeal.

8.2. Limitation on Liability. No director of the Corporation shall be personally liable to the Corporation or to any of its stockholders for monetary damages arising out of such director's breach of fiduciary duty as a director of the Corporation, except to the extent that the elimination or limitation of such liability is not permitted by the DGCL, as the same exists or may hereafter be amended. No amendment to or repeal of the provisions of this Article 8 shall deprive any director of the Corporation of the benefit hereof with respect to any act or failure to act of such director occurring prior to such amendment or repeal.

ARTICLE 9

9.1. No Impairment. The Corporation shall not, by amendment of this Certificate or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms to be observed or performed hereunder by the Corporation but shall at all times in good faith assist in the taking of all such action as may be necessary or appropriate in order to protect the Conversion Rights of the holders of the Preferred Stock against impairment; provided that nothing herein shall prevent the Corporation from (i) seeking waivers pursuant to Sections 4.7.5(b), (c), (d), (e), (f) and (g) or (ii) amending the Corporation's Certificate of Incorporation in accordance with Section 4.6.

ARTICLE 10

10.1. Corporate Opportunity. The Corporation hereby renounces, to the fullest extent permitted by Section 122 (17) of the General Corporation Law of the State of Delaware, any interest or expectancy of the Corporation in, or in being offered, an opportunity to participate in, any Investor Business Opportunity. An "Investor Business Opportunity" is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of, (i) any director of the Corporation who is not an employee of the Corporation or any of its subsidiaries, or (ii) any holder of Preferred Stock or any partner, member, director, stockholder, employee or agent of any such holder, other than someone who is an employee of the Corporation or any of its subsidiaries (collectively, "Covered Persons"), unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person expressly and solely in such Covered Person's capacity as a director of the Corporation. To the fullest extent permitted by law, the Corporation hereby waives any claim against a Covered Person, and agrees to indemnify all Covered Persons against any claim that is based on fiduciary duties, the corporate opportunity doctrine or any other legal theory, in each case, which could limit any Covered Person from pursuing or engaging in any Investor Business Opportunity.

ARTICLE 11

Elections of directors need not be by written ballot unless the Bylaws of the Corporation shall so provide.

ARTICLE 12

Subject to the voting rights of the holders of the Preferred Stock (including, but not limited to the rights contemplated by Section 4.6), the Corporation reserves the right to amend, alter, change or repeal any provision contained in this Certificate in the manner now or hereafter prescribed by the General Corporation Law of the State of Delaware and this Certificate and all rights conferred upon stockholders herein are granted subject to this reservation.

Exhibit 3.2

BY-LAWS

OF

OptiNose, Inc.

Incorporated under the Laws of the State of Delaware

(as adopted on May 27, 2010)

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BYLAWS OF
OPTINOSE, INC.

ARTICLE I

STOCKHOLDERS

1.1. **Place of Meetings.** All meetings of stockholders shall be held at such place as may be designated from time to time by the Board of Directors, the Chairman of the Board, the Chief Executive Officer or, if not so designated, at the principal office of the corporation. The Board of Directors may, in its sole discretion, determine that a meeting shall not be held at any place, but may instead be held solely by means of remote communication in a manner consistent with the General Corporation Law of the State of Delaware.

1.2. **Annual Meeting.** Unless directors are elected by consent in lieu of an annual meeting, the annual meeting of stockholders for the election of directors and for the transaction of such other business as may properly be brought before the meeting shall be held on a date and at a time designated by the Board of Directors, the Chairman of the Board or the Chief Executive Officer (which date shall not be a legal holiday in the place where the meeting is to be held). If no annual meeting is held in accordance with the foregoing provisions, a special meeting may be held in lieu of the annual meeting, and any action taken at that special meeting shall have the same effect as if it had been taken at the annual meeting, and in such case all references in these By-laws to the annual meeting of the stockholders shall be deemed to refer to such special meeting.

1.3. **Special Meetings.** Special meetings of stockholders for any purpose or purposes may be called at any time by the Board of Directors, the Chairman of the Board, the Chief Executive Officer or the holders of 25% or more of the outstanding shares of stock of the corporation entitled to vote at the meeting, but such special meetings may not be called by any other person or persons. Business transacted at any special meeting of stockholders shall be limited to matters relating to the purpose or purposes stated in the notice of meeting.

1.4. **Notice of Meetings.** Except as otherwise provided by law, notice of each meeting of stockholders, whether annual or special, shall be given not fewer than 10 nor more than 60 days before the date of the meeting to each stockholder entitled to vote at such meeting. Without limiting the manner by which notice otherwise may be given to stockholders, any notice shall be effective if given by a form of electronic transmission consented to (in a manner consistent with the General Corporation Law of the State of Delaware) by the stockholder to whom the notice is given. The notices of all meetings shall state the place, if any, date and time of the meeting and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such meeting. The notice of a special meeting shall state, in addition, the purpose or purposes for which the meeting is called. If notice is given by mail, such notice shall be deemed given when deposited in the United States mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on the records of the corporation. If notice is given by electronic transmission, such notice shall be

deemed given at the time specified in Section 232 of the General Corporation Law of the State of Delaware.

1.5. **Voting List.** The Secretary shall prepare, at least 10 days before every meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting, arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting for a period of at least 10 days prior to the meeting: (i) on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting, or (ii) during ordinary business hours, at the principal place of business of the corporation. If the meeting is to be held at a place, then the list shall be produced and kept at the time and place of the meeting during the whole time thereof, and may be inspected by any stockholder who is present. If the meeting is to be held solely by means of remote communication, then the list shall also be open to the examination of any stockholder during the whole time of the meeting on a reasonably accessible electronic network, and the information required to access such list shall be provided with the notice of the meeting.

1.6. **Quorum.** Except as otherwise provided by law, the Certificate of Incorporation or these Bylaws, the holders of a majority of the shares of the capital stock of the corporation issued and outstanding and entitled to vote at the meeting, present in person, present by means of remote communication in a manner, if any, authorized by the Board of Directors in its sole discretion or represented by proxy, shall constitute a quorum for the transaction of business. A quorum, once established at a meeting, shall not be broken by the withdrawal of enough votes to leave less than a quorum.

1.7. **Adjournments.** Any meeting of stockholders may be adjourned from time to time to any other time and to any other place at which a meeting of stockholders may be held under these Bylaws by the stockholders present or represented at the meeting and entitled to vote, although less than a quorum, or, if no stockholder is present, by any officer entitled to preside at or to act as secretary of such meeting. It shall not be necessary to notify any stockholder of any adjournment of less than 30 days if the time and place, if any, of the adjourned meeting, and the means of remote communication, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such adjourned meeting, are announced at the meeting at which adjournment is taken, unless after the adjournment a new record date is fixed for the adjourned meeting. At the adjourned meeting, the corporation may transact any business which might have been transacted at the original meeting.

1.8. **Voting and Proxies.** Each stockholder shall have one vote for each share of stock entitled to vote held of record by such stockholder and a proportionate vote for each fractional share so held, unless otherwise provided by law or the Certificate of Incorporation. Each stockholder of record entitled to vote at a meeting of stockholders, or to express consent or dissent to corporate action without a meeting, may vote or express such consent or dissent in person (including by means of remote communications, if any, by which stockholders may be deemed to be present in person and vote at such meeting) or may authorize another person or persons to vote or act for such stockholder by a proxy executed or transmitted in a manner

permitted by the General Corporation Law of the State of Delaware by the stockholder or such stockholder's authorized agent and delivered (including by electronic transmission) to the Secretary of the corporation. No such proxy shall be voted or acted upon after three years from the date of its execution, unless the proxy expressly provides for a longer period.

1.9. **Action at Meeting.** When a quorum is present at any meeting, any matter other than the election of directors to be voted upon by the stockholders at such meeting shall be decided by the affirmative vote of the holders of shares of stock having a majority of the votes cast by the holders of all of the shares of stock present or represented and voting on such matter (or if there are two or more classes of stock entitled to vote as separate classes, then in the case of each such class, the holders of a majority of the stock of that class present or represented and voting on such matter), except when a different vote is required by law, the Certificate of Incorporation, these Bylaws or otherwise. When a quorum is present at any meeting, any election by stockholders of directors shall be determined by a plurality of the votes cast on the election, except when a different vote is required by law or the Certificate of Incorporation.

1.10. **Conduct of Meetings.**

(a) **Chairman of Meeting**. Meetings of stockholders shall be presided over by the Chairman of the Board, if any, or in the Chairman's absence by the Vice Chairman of the Board, if any, or in the Vice Chairman's absence by the Chief Executive Officer, or in the Chief Executive Officer's absence by a Vice President, or in the absence of all of the foregoing persons by a chairman designated by the Board of Directors, or in the absence of such designation by a chairman chosen by vote of the stockholders at the meeting. The Secretary shall act as secretary of the meeting, but in the Secretary's absence the chairman of the meeting may appoint any person to act as secretary of the meeting.

(b) **Rules, Regulations and Procedures**. The Board of Directors of the corporation may adopt by resolution such rules, regulations and procedures for the conduct of any meeting of stockholders of the corporation as it shall deem appropriate including, without limitation, such guidelines and procedures as it may deem appropriate regarding the participation by means of remote communication of stockholders and proxyholders not physically present at a meeting. Except to the extent inconsistent with such rules, regulations and procedures as adopted by the Board of Directors, the chairman of any meeting of stockholders shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairman, are appropriate for the proper conduct of the meeting. Such rules, regulations or procedures, whether adopted by the Board of Directors or prescribed by the chairman of the meeting, may include, without limitation, the following: (i) the establishment of an agenda or order of business for the meeting; (ii) rules and procedures for maintaining order at the meeting and the safety of those present; (iii) limitations on attendance at or participation in the meeting to stockholders of record of the corporation, their duly authorized and constituted proxies or such other persons as shall be determined; (iv) restrictions on entry to the meeting after the time fixed for the commencement thereof; and (v) limitations on the time allotted to questions or comments by participants. Unless and to the extent determined by the Board of Directors or the chairman of the meeting, meetings of stockholders shall not be required to be held in accordance with the rules of parliamentary procedure.

1.11. **Action without Meeting.**

(a) **Taking of Action by Consent**. Any action required or permitted to be taken at any annual or special meeting of stockholders of the corporation may be taken without a meeting, without prior notice and without a vote, if a consent in writing, setting forth the action so taken, is signed by the holders (acting for themselves or through a proxy) of outstanding stock having not fewer than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote on such action were present and voted. Except as otherwise provided by the Certificate of Incorporation, stockholders may act by written consent to elect directors.

(b) **Electronic Transmission of Consents**. A telegram, cablegram or other electronic transmission consenting to an action to be taken and transmitted by a stockholder or proxyholder, or by a person or persons authorized to act for a stockholder or proxyholder, shall be deemed to be written, signed and dated for the purposes of this section, provided that any such telegram, cablegram or other electronic transmission sets forth or is delivered with information from which the corporation can determine (A) that the telegram, cablegram or other electronic transmission was transmitted by the stockholder or proxyholder or by a person or persons authorized to act for the stockholder or proxyholder and (B) the date on which such stockholder or proxyholder or authorized person or persons transmitted such telegram, cablegram or electronic transmission. The date on which such telegram, cablegram or electronic transmission is transmitted shall be deemed to be the date on which such consent was signed. No consent given by telegram, cablegram or other electronic transmission shall be deemed to have been delivered until such consent is reproduced in paper form and until such paper form shall be delivered to the corporation by delivery to its registered office in the State of Delaware, its principal place of business or an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded. Delivery made to a corporation's registered office shall be made by hand or by certified or registered mail, return receipt requested. Notwithstanding the foregoing limitations on delivery, consents given by telegram, cablegram or other electronic transmission may be otherwise delivered to the principal place of business of the corporation or to an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded if, to the extent and in the manner provided by resolution of the Board of Directors. Any copy, facsimile or other reliable reproduction of a consent in writing may be substituted or used in lieu of the original writing for any and all

purposes for which the original writing could be used, provided that such copy, facsimile or other reproduction shall be a complete reproduction of the entire original writing.

(c) **Notice of Taking of Corporate Action**. Prompt notice of the taking of corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing and who, if the action had been taken at a meeting, would have been entitled to notice of the meeting if the record date for such meeting had been the date that written consents signed by a sufficient number of holders to take the action were delivered to the corporation.

ARTICLE II

DIRECTORS

2.1. **General Powers.** The business and affairs of the corporation shall be managed by or under the direction of a Board of Directors, who may exercise all of the powers of the corporation except as otherwise provided by law or the Certificate of Incorporation.

2.2. **Number; Election and Qualification.** The number of directors which shall constitute the whole Board of Directors shall be at least one (1) and no more than nine (9). Except as otherwise provided by the Certificate of Incorporation or a stockholders' agreement among the corporation and any of its stockholders, the number of directors may be decreased at any time and from time to time either by the stockholders or by a majority of the directors then in office, but only to eliminate vacancies existing by reason of the death, resignation, removal or expiration of the term of one or more directors. The directors shall be elected at the annual meeting of stockholders by such stockholders as have the right to vote on such election. Directors need not be stockholders of the corporation.

2.3. **Enlargement of the Board.** Except as otherwise provided by the Certificate of Incorporation, the number of directors may be increased at any time and from time to time by the stockholders or by a majority of the directors then in office.

2.4. **Tenure.** Each director shall hold office until the next annual meeting and until a successor is elected and qualified, or until such director's earlier death, resignation or removal.

2.5. **Vacancies.** Except as otherwise provided by a stockholders' agreement among the corporation and any of its stockholders, unless and until filled by the stockholders, any vacancy in the Board of Directors, however occurring, including a vacancy resulting from an enlargement of the Board, may be filled by vote of a majority of the directors then in office, although less than a quorum, or by a sole remaining director. Except as otherwise provided by a stockholders' agreement among the corporation and any of its stockholders, a director elected to fill a vacancy shall be elected for the unexpired term of such director's predecessor in office, and a director chosen to fill a position resulting from an increase in the number of directors shall hold office until the next annual meeting of stockholders and until a successor is elected and qualified, or until such director's earlier death, resignation or removal.

2.6. **Resignation.** Any director may resign by delivering a resignation in writing or by electronic transmission to the corporation at its principal office or to the Chairman of the Board, the Chief Executive Officer or the Secretary. Such resignation shall be effective upon receipt unless it is specified to be effective at some later time or upon the happening of some later event.

2.7. **Regular Meetings.** Regular meetings of the Board of Directors may be held at such time and place as shall be determined from time to time by the Board of Directors; provided that any director who is absent when such a determination is made shall be given notice of the determination. A regular meeting of the Board of Directors may be held without notice immediately after and at the same place as the annual meeting of stockholders.

2.8. **Special Meetings.** Special meetings of the Board of Directors may be held at any time and place designated in a call by the Chairman of the Board, the Chief Executive Officer, two or more directors, or by one director in the event that there is only a single director in office.

2.9. **Notice of Meetings.** Notice of any meeting of directors shall be given to each director by the Secretary or by the officer or one of the directors calling the meeting. Notice shall be duly given to each director (i) in person or by telephone at least 24 hours in advance of the meeting, (ii) by sending written notice via reputable overnight courier, telecopy or electronic mail, or delivering written notice by hand, to such director's last known business, home or electronic mail address at least 48 hours in advance of the meeting, or (iii) by sending written notice via first-class mail to such director's last known business or home address at least 72 hours in advance of the meeting. A notice or waiver of notice of a meeting of the Board of Directors need not specify the purposes of the meeting.

2.10. **Meetings by Conference Communications Equipment.** Directors may participate in meetings of the Board of Directors or any committee thereof by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and participation by such means shall constitute presence in person at such meeting.

2.11. **Quorum.** Except as otherwise provided by the Certificate of Incorporation or a stockholders' agreement among the corporation and any of its stockholders, a majority of the directors at any time in office shall constitute a quorum. In the absence of a quorum at any such meeting, a majority of the directors present may adjourn the meeting from time to time without further notice other than announcement at the meeting, until a quorum shall be present.

2.12. **Action at Meeting.** At any meeting of the Board of Directors at which a quorum is present, the vote of a majority of those present shall be sufficient to take any action, unless a different vote is specified by law or the Certificate of Incorporation.

2.13. **Action by Consent.** Any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting, if all members of the Board of Directors or committee, as the case may be, consent to the action in writing or by electronic transmission, and the written consents or electronic transmissions are filed with the minutes of proceedings of the Board of Directors or committee.

2.14. **Removal.** Except as otherwise provided by the General Corporation Law of the State of Delaware or a stockholders' agreement among the corporation and any of its stockholders, any one or more or all of the directors may be removed, with or without cause, by the holders of a majority of the shares then entitled to vote at an election of directors, except that the directors elected by the holders of a particular class or series of stock may be removed without cause only by vote of the holders of a majority of the outstanding shares of such class or series.

2.15. **Committees.** The Board of Directors may designate one or more committees, each committee to consist of one or more of the directors of the corporation. Except as otherwise

provided by a stockholders' agreement among the corporation and any of its stockholders, the Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. In the absence or disqualification of a member of a committee, the member or members of the committee present at any meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member. Any such committee, to the extent provided in the resolution of the Board of Directors and subject to the provisions of law, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the corporation and may authorize the seal of the corporation to be affixed to all papers which may require it. Each such committee shall keep minutes and make such reports as the Board of Directors may from time to time request. Except as the Board of Directors may otherwise determine, any committee may make rules for the conduct of its business, but unless otherwise provided by the directors or in such rules, its business shall be conducted as nearly as possible in the same manner as is provided in these Bylaws for the Board of Directors.

2.16. **Compensation of Directors.** Directors may be paid such compensation for their services and such reimbursement for expenses of attendance at meetings as the Board of Directors may from time to time determine. No such payment shall preclude any director from serving the corporation or any of its parent or subsidiary corporations in any other capacity and receiving compensation for such service.

ARTICLE III

OFFICERS

3.1. **Titles.** The officers of the corporation shall consist of a Chief Executive Officer, a President, a Secretary, a Treasurer and such other officers with such other titles as the Board of Directors shall determine, including a Chairman of the Board, a Vice Chairman of the Board, and one or more Vice Presidents, Assistant Treasurers, and Assistant Secretaries. The Board of Directors may appoint such other officers as it may deem appropriate.

3.2. **Election.** The Chief Executive Officer, President, Treasurer and Secretary shall be elected annually by the Board of Directors at its first meeting following the annual meeting of stockholders. Other officers may be appointed by the Board of Directors at such meeting or at any other meeting.

3.3. **Qualification.** No officer need be a stockholder. Any two or more offices may be held by the same person.

3.4. **Tenure.** Except as otherwise provided by law, by the Certificate of Incorporation or by these Bylaws, each officer shall hold office until such officer's successor is elected and qualified, unless a different term is specified in the resolution electing or appointing such officer, or until such officer's earlier death, resignation or removal.

3.5. **Resignation and Removal.** Any officer may resign by delivering a written resignation to the corporation at its principal office or to the Chief Executive Officer or the Secretary. Such resignation shall be effective upon receipt unless it is specified to be effective at some later time or upon the happening of some later event.

Any officer may be removed at any time, with or without cause, by vote of a majority of the entire number of directors then in office.

Except as the Board of Directors may otherwise determine, no officer who resigns or is removed shall have any right to any compensation as an officer for any period following such officer's resignation or removal, or any right to damages on account of such removal, whether such officer's compensation be by the month or by the year or otherwise, unless such compensation is expressly provided in a duly authorized written agreement with the corporation.

3.6. **Vacancies.** The Board of Directors may fill any vacancy occurring in any office for any reason and may, in its discretion, leave unfilled for such period as it may determine any offices other than those of Chief Executive Officer, President, Treasurer and Secretary. Each such successor shall hold office for the unexpired term of such officer's predecessor and until a successor is elected and qualified, or until such officer's earlier death, resignation or removal.

3.7. **Chairman of the Board.** The Board of Directors may appoint from its members a Chairman of the Board, who need not be an employee or officer of the corporation. If the Board of Directors appoints a Chairman of the Board, such Chairman shall perform such duties and possess such powers as are assigned by the Board of Directors and, if the Chairman of the Board is also designated as the corporation's Chief Executive Officer, shall have the powers and duties of the Chief Executive Officer prescribed in Section 3.8 of these Bylaws. Unless otherwise provided by the Board of Directors, the Chairman of the Board shall preside at all meetings of the Board of Directors and stockholders.

3.8. **President; Chief Executive Officer.** The Chief Executive Officer shall be the President of the corporation. The Chief Executive Officer shall have general charge and supervision of the business of the corporation subject to the direction of the Board of Directors and shall perform such other duties and shall have such other powers as the Board of Directors may from time to time prescribe. In the event of the absence, inability or refusal to act of the Chief Executive Officer, the Vice President (or if there shall be more than one, the Vice Presidents in the order determined by the Board of Directors) shall perform the duties of the Chief Executive Officer and when so performing such duties shall have all the powers of and be subject to all the restrictions upon the Chief Executive Officer.

3.9. **Vice Presidents.** Any Vice President shall perform such duties and possess such powers as the Board of Directors or the Chief Executive Officer may from time to time prescribe. The Board of Directors may assign to any Vice President the title of Executive Vice President, Senior Vice President or any other title selected by the Board of Directors.

3.10. **Secretary and Assistant Secretaries.** The Secretary shall perform such duties and shall have such powers as the Board of Directors or the Chief Executive Officer may from

time to time prescribe. In addition, the Secretary shall perform such duties and have such powers as are incident to the office of the secretary, including without limitation the duty and power to give notices of all meetings of stockholders and special meetings of the Board of Directors, to attend all meetings of stockholders and the Board of Directors and keep a record of the proceedings, to maintain a stock ledger and prepare lists of stockholders and their addresses as required, to be custodian of corporate records and the corporate seal and to affix and attest to the same on documents.

Any Assistant Secretary shall perform such duties and possess such powers as the Board of Directors, the Chief Executive Officer or the Secretary may from time to time prescribe. In the event of the absence, inability or refusal to act of the Secretary, the Assistant Secretary, (or if there shall be more than one, the Assistant Secretaries in the order determined by the Board of Directors) shall perform the duties and exercise the powers of the Secretary.

In the absence of the Secretary or any Assistant Secretary at any meeting of stockholders or directors, the chairman of the meeting shall designate a temporary secretary to keep a record of the meeting.

3.11. **Treasurer and Assistant Treasurers.** The Treasurer shall perform such duties and shall have such powers as may from time to time be assigned by the Board of Directors or the Chief Executive Officer. In addition, the Treasurer shall perform such duties and have such powers as are incident to the office of treasurer, including without limitation the duty and power to keep and be responsible for all funds and securities of the corporation, to deposit funds of the corporation in depositories selected in accordance with these Bylaws, to disburse such funds as ordered by the Board of Directors, to make proper accounts of such funds, and to render as required by the Board of Directors statements of all such transactions and of the financial condition of the corporation.

The Assistant Treasurers shall perform such duties and possess such powers as the Board of Directors, the Chief Executive Officer or the Treasurer may from time to time prescribe. In the event of the absence, inability or refusal to act of the Treasurer, the Assistant Treasurer, (or if there shall be more than one, the Assistant Treasurers in the order determined by the Board of Directors) shall perform the duties and exercise the powers of the Treasurer.

3.12. **Salaries.** Officers of the corporation shall receive such salaries, compensation or reimbursement as may be fixed or allowed from time to time by the Board of Directors.

ARTICLE IV

CAPITAL STOCK

4.1. **Issuance of Stock.** Unless otherwise voted by the stockholders and subject to the provisions of the Certificate of Incorporation, the whole or any part of any unissued balance of the authorized capital stock of the corporation or the whole or any part of any shares of the authorized capital stock of the corporation held in the corporation's treasury may be issued, sold,

transferred or otherwise disposed of by vote of the Board of Directors in such manner, for such lawful consideration and on such terms as the Board of Directors may determine.

4.2. **Certificates of Stock.** Every holder of stock of the corporation shall be entitled to have a certificate, in such form as may be prescribed by law and by the Board of Directors, certifying the number and class of shares owned by such holder in the corporation. Each such certificate shall be signed by, or in the name of the corporation by, the Chairman or Vice-Chairman, if any, of the Board of Directors, or the Chief Executive Officer or a Vice President, and the Treasurer or an Assistant Treasurer, or the Secretary or an Assistant Secretary of the corporation. Any or all of the signatures on the certificate may be a facsimile.

Each certificate for shares of stock which are subject to any restriction on transfer pursuant to the Certificate of Incorporation, these Bylaws, applicable securities laws or any agreement among any number of stockholders or among such holders and the corporation shall have conspicuously noted on the face or back of the certificate either the full text of the restriction or a statement of the existence of such restriction.

If the corporation shall be authorized to issue more than one class of stock or more than one series of any class, the powers, designations, preferences and relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights shall be set forth in full or summarized on the face or back of each certificate representing shares of such class or series of stock, provided that in lieu of the foregoing requirements there may be set forth on the face or back of each certificate representing shares of such class or series of stock a statement that the corporation will furnish without charge to each stockholder who so requests a copy of the full text of the powers, designations, preferences and relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights.

4.3. **Transfers.** Except as otherwise established by rules and regulations adopted by the Board of Directors, and subject to applicable law, shares of stock may be transferred on the books of the corporation by the surrender to the corporation or its transfer agent of the certificate representing such shares properly endorsed or accompanied by a written assignment or power of attorney properly executed, and with such proof of authority or the authenticity of signature as the corporation or its transfer agent may reasonably require. Except as may be otherwise required by law, by the Certificate of Incorporation or by these Bylaws, the corporation shall be entitled to treat the record holder of stock as shown on its books as the owner of such stock for all purposes,

including the payment of dividends and the right to vote with respect to such stock, regardless of any transfer, pledge or other disposition of such stock until the shares have been transferred on the books of the corporation in accordance with the requirements of these Bylaws.

4.4. **Lost, Stolen or Destroyed Certificates.** The corporation may issue a new certificate of stock in place of any previously issued certificate alleged to have been lost, stolen or destroyed, upon such terms and conditions as the Board of Directors may prescribe, including the presentation of reasonable evidence of such loss, theft or destruction and the giving of such

indemnity and posting of such bond as the Board of Directors may require for the protection of the corporation or any transfer agent or registrar.

4.5. **Record Date.** The Board of Directors may fix in advance a date as a record date for the determination of the stockholders entitled to notice of or to vote at any meeting of stockholders or to express consent (or dissent) to corporate action without a meeting, or entitled to receive payment of any dividend or other distribution or allotment of any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action. Such record date shall not be more than 60 nor less than 10 days before the date of such meeting, nor more than 10 days after the date of adoption of a record date for a consent without a meeting, nor more than 60 days prior to any other action to which such record date relates.

If no record date is fixed, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day before the day on which notice is given, or, if notice is waived, at the close of business on the day before the day on which the meeting is held. If no record date is fixed, the record date for determining stockholders entitled to express consent to corporate action without a meeting, when no prior action by the Board of Directors is necessary, shall be the day on which the first consent is properly delivered to the corporation. If no record date is fixed, the record date for determining stockholders for any other purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating to such purpose.

A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; provided, however, that the Board of Directors may fix a new record date for the adjourned meeting.

ARTICLE V

INDEMNIFICATION; INSURANCE

5.1. **Authorization of Indemnification and Contractual Rights.** Each person who was or is a party or is threatened to be made a party to or is involved in any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative, investigative or otherwise and whether by or in the right of the Corporation or otherwise (each, a "Proceeding"), by reason of the fact that he or she, or a person of whom he or she is the legal representative, is or was a director or officer of the Corporation or while serving as a director or officer of the Corporation, is or was serving at the request of the Corporation as a director, officer, employee, trustee, partner (limited or general) or agent of another corporation or of a partnership, joint venture, limited liability company, trust or other enterprise, including service with respect to an employee benefit plan, shall be (and shall be deemed, as further set forth in this Section 5.1 below, to have a contractual right to be) indemnified and held harmless by the Corporation (and any successor to the Corporation by merger or otherwise) to the fullest extent permitted by law, and subject to the conditions and (except as provided herein) procedures set forth in the Delaware General Corporation Law, as the same exists or may hereafter be amended (but any such amendment shall not be deemed to limit or prohibit the rights of indemnification hereunder for past acts or omissions of any such person insofar as such amendment limits or prohibits the

indemnification rights that said law permitted the Corporation to provide prior to such amendment), against all expenses, liabilities and losses (including attorneys' fees, judgments, fines, ERISA taxes or penalties and amounts paid or to be paid in settlement) actually and reasonably incurred or suffered by such person or his heirs, executors or administrators in connection therewith; provided, however, that the Corporation shall indemnify any such person seeking indemnification in connection with a Proceeding (or part thereof) initiated by such person (except for a suit or action pursuant to Section 5.2 hereof) only if such Proceeding (or part thereof) was authorized by the Board of Directors of the Corporation. Persons who are not directors or officers of the Corporation and are not so serving at the request of the Corporation may be similarly indemnified in respect of such service to the extent authorized at any time by the Board of Directors of the Corporation. The indemnification conferred in this Section 5.1 also shall include the right to be paid by the Corporation (and such successor) the expenses (including attorneys' fees) incurred in the defense of or other involvement in any such Proceeding in advance of its final disposition; provided, however, that, if and to the extent the Delaware General Corporation Law requires, the payment of such expenses (including attorneys' fees) incurred by a director or officer in advance of the final disposition of a Proceeding shall be made only upon delivery to the Corporation of an undertaking by or on behalf of such director or officer to repay all amounts so paid in advance if it shall ultimately be determined that such director or officer is not entitled to be indemnified under this Section 5.1 or otherwise; and provided further, that, such expenses incurred by other employees and agents may be so paid in advance upon such terms and conditions, if any, as the Board of Directors deems appropriate. The rights to indemnification and advance payment of expenses conferred upon any current or former director or officer of the Corporation pursuant to this Section 5.1 (whether by reason of the fact that such person is or was a director or officer of the Corporation, or while serving as a director or officer of the Corporation, is or was serving at the request of the Corporation as a director, officer, employee, trustee, partner (limited or general) or agent of another corporation or of a partnership, joint venture, limited liability company, trust or other enterprise, including service with respect to an employee benefit plan) shall be contractual rights and shall vest when any such person becomes a director or officer of the Corporation.

5.2. **Right of Claimant to Bring Action Against the Corporation.** If a claim under Section 5.1 is not paid in full by the Corporation within sixty days after a written claim has been received by the Corporation, the claimant may at any time thereafter bring an action against the Corporation to recover the unpaid amount of the claim and, if successful in whole or in part, the claimant shall be entitled to be paid also the expense of prosecuting such action. It shall be a defense to any such action (other than an action brought to enforce a claim for expenses incurred in connection with any Proceeding in advance of its final disposition where the required undertaking, if any is required, has been tendered to the Corporation) that the claimant has not met the standards of conduct which make it permissible under the Delaware General Corporation Law for the Corporation to indemnify the claimant for the amount claimed or is otherwise not entitled to indemnification under Section 5.1, but the burden of proving such defense shall be on the Corporation. The failure of the Corporation (in the manner provided under the Delaware General Corporation Law) to have made a determination prior to or after the commencement of

such action that indemnification of the claimant is proper in the circumstances because he or she has met the applicable standard of conduct set forth in the Delaware General Corporation Law shall not be a defense to the action or create a presumption that the claimant has not met the

applicable standard of conduct. Unless otherwise specified in an agreement with the claimant, an actual determination by the Corporation (in the manner provided under the Delaware General Corporation Law) after the commencement of such action that the claimant has not met such applicable standard of conduct shall not be a defense to the action, but shall create a presumption that the claimant has not met the applicable standard of conduct.

5.3. **Non-exclusivity.** The rights to indemnification and advance payment of expenses provided by Section 5.1 hereof shall not be deemed exclusive of any other rights to which those seeking indemnification and advance payment of expenses may be entitled under any bylaw, agreement, vote of stockholder(s) or disinterested directors or otherwise, both as to action in his or her official capacity and as to action in another capacity while holding such office and, for the avoidance of doubt, nothing herein shall prohibit the Corporation from entering into separate agreements with its directors or officers regarding indemnification and advance payment of expenses; and no provision of these Bylaws is intended to be construed as limiting, prohibiting, denying or abrogating any of the general or specific powers or rights conferred under the Delaware General Corporation Law upon the Corporation to furnish, or upon any court to award, such indemnification, or indemnification as otherwise authorized pursuant to the Delaware General Corporation Law or any other law now or hereafter in effect.

5.4. **Survival of Indemnification.** The indemnification and advance payment of expenses and rights thereto provided by, or granted pursuant to, Section 5.1 hereof shall continue as vested contractual rights even if such person ceases to be a director, officer, employee, partner or agent and shall inure to the benefit of the personal representatives, heirs, executors and administrators of such person. Any amendment, repeal, or modification of, or adoption of any provision inconsistent with, this Article 5 shall not adversely affect any right to indemnification or advance payment of expenses granted to any person pursuant thereto with respect to any act or omission of such person occurring prior to the time of such amendment, repeal, modification, or adoption (regardless of whether the Proceeding relating to such acts or omissions, or any Proceeding relating to such person's rights to indemnification or to advance payment of expenses, is commenced before or after the time of such amendment, repeal, modification, or adoption), and any such amendment, repeal, modification, or adoption that would adversely affect such person's rights to indemnification or advance payment of expenses hereunder shall be ineffective as to such person, except with respect to any threatened, pending, or completed Proceeding that relates to or arises from (and only to the extent such Proceeding relates to or arises from) any act or omission of such person occurring after the effective time of such amendment, repeal, modification, or adoption.

5.5. **Insurance.** The Corporation shall have power to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee, trustee or agent of the Corporation, or is or was serving at the request of the Corporation as a director, officer, employee, trustee, partner (limited or general) or agent of another corporation or of a partnership, joint venture, limited liability company, trust or other enterprise, against any liability asserted against such person or incurred by such person in any such capacity, or arising out of such person's status as such, and related expenses, whether or not the Corporation would have the power to indemnify such person against such liability under the provisions of the Delaware General Corporation Law.

5.6. **Business Combinations.** Unless the Board of Directors shall determine otherwise with reference to a particular merger or consolidation or other business combination, for purposes of this Article 5, references to "the Corporation" shall include, in addition to the existing corporation, any constituent corporation (including any constituent of a constituent) absorbed in a merger or consolidation or other business combination which, if its separate existence had continued, would have had power and authority to indemnify its directors or officers so that any person who is or was a director, officer, employee, trustee, partner (limited or general) or agent of such constituent corporation, or is or was serving at the request of such constituent corporation as a director, officer, employee, trustee, partner (limited or general) or agent of another corporation, or of a partnership, joint venture, limited liability company, trust or other enterprise, including service with respect to an employee benefit plan, shall stand in the same position under the provisions of this Article 5 with respect to the resulting or surviving corporation as he or she would have with respect to such constituent corporation if its separate existence had continued.

ARTICLE VI

GENERAL PROVISIONS

6.1. **Fiscal Year.** Except as from time to time otherwise designated by the Board of Directors, the fiscal year of the corporation shall begin on the first day of January of each year and end on the last day of December in each year.

6.2. **Corporate Seal.** The corporate seal (if any) shall be in such form as shall be approved by the Board of Directors.

6.3. **Waiver of Notice.** Whenever notice is required to be given by law, by the Certificate of Incorporation or by these Bylaws, a written waiver, signed by the person entitled to notice, or a waiver by electronic transmission by the person entitled to notice, whether before, at or after the time stated in such notice, shall be deemed equivalent to notice. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened.

6.4. **Voting of Securities.** Except as the Board of Directors may otherwise designate, the Chief Executive Officer or the Treasurer may waive notice of, and act as, or appoint any person or persons to act as, proxy or attorney-in-fact for this corporation (with or without power of substitution) at, any meeting of stockholders or shareholders of any other corporation or organization, the securities of which may be held by this corporation.

6.5. **Evidence of Authority.** A certificate by the Secretary, or an Assistant Secretary, or a temporary Secretary, as to any action taken by the stockholders, directors, a committee or any officer or representative of the corporation shall as to all persons who rely on the certificate in good faith be conclusive evidence of such action.

6.6. **Certificate of Incorporation.** All references in these Bylaws to the Certificate of Incorporation shall be deemed to refer to the Certificate of Incorporation of the corporation, as the same may be amended and in effect from time to time.

6.7. **Severability.** Any determination that any provision of these Bylaws is for any reason inapplicable, illegal or ineffective shall not affect or invalidate any other provision of these Bylaws.

6.8. **Pronouns.** All pronouns used in these Bylaws shall be deemed to refer to the masculine, feminine or neuter, singular or plural, as the identity of the person or persons may require.

ARTICLE VII

AMENDMENTS

Except as otherwise provided by the Certificate of Incorporation or a stockholders' agreement among the corporation and any of its stockholders, these Bylaws may be amended or repealed at any regular or special meeting of the board of directors by vote of a majority of all directors in office or at any annual or special meeting of stockholders by vote of holders of a majority of the outstanding stock entitled to vote. Notice of any such annual or special meeting of stockholders shall set forth the proposed change or a summary thereof.

Exhibit 3.3

OPTINOSE, INC.

AMENDMENT NO. 1
TO THE BY-LAWS OF
OPTINOSE, INC.

March 24, 2017

The By-Laws (the "**By-Laws**") of OptiNose, Inc., a Delaware corporation (the "**Corporation**"), adopted by the Board of Directors of the Corporation on May 27, 2010, are hereby amended by this Amendment No. 1 (this "**Amendment**") pursuant to Article VII thereof as set forth below.

1. AMENDMENT

The phrase "no more than nine (9)" in Section 2.2 of the By-Laws is hereby amended by replacing such phrase with the phrase "no more than ten (10)".

2. MISCELLANEOUS

Except as modified by this Amendment, which shall be effective as of the date first written above, the Bylaws shall remain in full force and effect.

[*Signature page follows*]

IN WITNESS WHEREOF, to record adoption of this Amendment by the Board as of the date first written above, the Company has caused its authorized officer to execute this Amendment as of the date first written above.

By: /s/ Peter Miller
Peter Miller
Chief Executive Officer

[*Signature page to Amendment No. 1 to the Bylaws of OptiNose, Inc.*]

Exhibit 4.2

OPTINOSE, INC.

SECOND AMENDED AND RESTATED
REGISTRATION RIGHTS AGREEMENT

Dated as of March 24, 2017

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SECOND AMENDED AND RESTATED
REGISTRATION RIGHTS AGREEMENT

This Second Amended and Restated Registration Rights Agreement (this "**Agreement**") is made as of March 24, 2017, by and among OPTINOSE, INC., a Delaware corporation (the "**Company**"), and the holders of Series D Shares, Series C-2 Shares, Series C-1 Shares, Series C Shares and Series B Shares of the Company identified on the signature pages hereto (collectively, the "**Investors**").

RECITALS:

A. WHEREAS, the Company and certain of the Investors (the "**Prior Holders**") are party to that certain Amended and Restated Registration Rights Agreement, dated July 22, 2014 (the **"Prior Agreement**");

B. WHEREAS, the Company and certain of the Investors are entering into a Series D Subscription Agreement, dated the date hereof and as amended from time to time (the "**Subscription Agreement**") pursuant to which the Company shall issue to such Investors Series D Shares (as defined herein);

C. WHEREAS, the Company and certain of the Investors are entering into a Note Conversion Agreement (the "**Note Conversion Agreement**"), dated the date hereof, pursuant to which the Company shall issue to such Investors Series C-2 Shares (as defined herein);

D. WHEREAS, the initial closing and each subsequent closing of the transactions contemplated by the Subscription Agreement and such note conversion agreement are subject to certain conditions, including the conditions that the Company and certain of the Investors shall enter into this Agreement, amending and restating the Prior Agreement in its entirety; and

E. WHEREAS, the Company and the Prior Holders, holding a sufficient number of and class(es) of shares of the Company's capital stock to amend the Prior Agreement pursuant to its terms, desire to amend and restate, in its entirety, the Prior Agreement, and enter into this Agreement for the purpose of setting forth certain rights and obligations of the Investors.

Accordingly, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree to amend and restate the Prior Agreement and further agree as follows:

1. Definitions.

(a) "**Affiliates**" means, with respect to any Investor, any Person or entity that, directly or indirectly, controls, is controlled by or is under common control with such Investor, including, without limitation, any general partner, officer, director, nominee, member or manager of such Investor and any venture capital or private equity fund now or hereafter existing which is controlled by one or more general partners of or managing members of, or shares the same management company or nominee or a management company that, directly or indirectly, is under common control with such management company, including having a common general partner, officer, director or manager with such management company, as such Investor, and the

participants of any pooled investment fund organized, managed or directed by an Investor for the benefit of its partners, officers, members or employees or their dependents and in relation to any such Persons any trustee or nominee for, or a successor by reorganization of, a family trust or a qualified pension trust.

(b) "**Avista Entities**" means Avista Capital Partners II, LP, Avista Capital Partners (Offshore) II, LP, And Avista Capital Partners (Offshore) II-A, LP.

(c) "**Charter**" means the Third Amended and Restated Certificate of Incorporation of the Company dated as of March 24, 2017, as the same may be amended from time to time.

(d) "**Common Shares**" means common shares of the Company, with par value $0.001 per share.

(e) "**Exchange Act**" means the U.S. Securities Exchange Act of 1934, as amended and the rules and regulations promulgated thereunder.

(f) "**FINRA**" means the Financial Industry Regulatory Authority, Inc. or any successor organization thereto.

(g) "**Form S-3**" means such form under the Securities Act as in effect on the date hereof or any registration form under the Securities Act subsequently adopted by the SEC which permits inclusion or incorporation of substantial information by reference to other documents filed by a registrant with the SEC.

(h) "**Form S-3 Notice**" shall have the meaning set forth in Section 3.

(i) "**Holder**" means any Person owning or having the right to acquire Registrable Securities, or any assignee thereof in accordance with Section 12.

(j) "**Initial Closing**" shall have the meaning set forth in the Subscription Agreement.

(k) "**Initial Public Offering**" means the Company's first underwritten public offering of its Common Shares under the Securities Act.

(l) "**Investor Request**" shall have the meaning set forth in Section 2(a).

(m) "**Maximum Offering Size**" shall have the meaning set forth in Section 2(b).

(n) "**Notice of Investor Request**" means the notice set forth in Section 2(a).

(o) "**Permitted Transferee**" shall have the meaning assigned to it in the Shareholders' Agreement.

(p) "**Person**" means any individual, partnership, limited liability company, joint venture, corporation, association, trust or any other entity or organization.

(q) "**Preferred Shares**" means collectively the Series A Shares, the Series B Shares, the Series C Shares, Series C-1 Shares, Series C-2 Shares and the Series D Shares of the Company.

(r) "**Register**," "**registered**," and "**registration**" refer to a registration effected by preparing and filing a registration statement or similar document in compliance with the Securities Act, and the declaration or ordering of effectiveness of such registration statement or document.

(s) "**Registrable Securities**" means (1) any Common Shares that are directly or indirectly issuable or issued upon conversion of Preferred Shares outstanding on the date hereof or Preferred Shares purchased pursuant to the Subscription Agreement and held directly or indirectly by an Investor, (2) any Common Shares that become issuable or issued upon conversion of Preferred Shares outstanding after the date hereof and are held directly or indirectly by an Investor, (3) any Common Shares otherwise owned by an Investor, including any Common Shares issued or issuable upon the conversion, exchange or exercise of any warrant, right or other security or which are issued as a dividend or other distribution with respect to, or in exchange for or in replacement of, or upon conversion of, Preferred Shares or Common Shares or such warrants, rights or securities, and (4) any Common Shares directly or indirectly issued or issuable to the Investors with respect to the securities referred to in clauses (1), (2) or (3) above by way of stock dividend or stock split or in connection with a combination of shares, recapitalization, merger, consolidation or other reorganization; provided, however, that a Common Share shall cease to be a Registrable Security when (i) it has been effectively registered under the Securities Act and been sold pursuant to such registration; (ii) it is sold pursuant to Rule 144 or Rule 145 or Regulation S (or any similar provisions then in force) under the Securities Act; (iii) it has otherwise been transferred or assigned pursuant to Section 12 and/or a new certificate or other evidence of ownership for it not bearing or requiring a legend as set forth in the Shareholders' Agreement (or other legend of similar import) and not subject to any stop transfer order has been delivered by or on behalf of the Company and no other restriction on transfer exists under the Securities Act; or (iv) the Investor holding such Common Share owns in the aggregate less than one percent (1%) of the issued and outstanding Common Shares of the Company (on an as-converted basis).

(t) "**Registration Expenses**" shall have the meaning set forth in Section 7.

(u) "**Requesting Investor**" shall have the meaning set forth in Section 2(a).

(v) "**Requesting Shareholders**" shall have the meaning set forth in Section 2(a).

(w) "**SEC**" means the U.S. Securities and Exchange Commission.

(x) "**Securities Act**" means the U.S. Securities Act of 1933, as amended.

(y) "**Series A Shares**" means shares of Series A Convertible Preferred Stock, par value $0.001 per share of the Company and having the rights, privileges, preferences and restrictions set forth in the Charter.

(z) "**Series B Shares**" means shares of Series B-1 Convertible Preferred Stock, par value $0.001 per share, of the Company and Series B-2 Convertible Preferred Stock, par value $0.001 per share, of the Company, each having the rights, privileges, preferences and restrictions set forth in the Charter.

(aa) "**Series C Shares**" means shares of Series C Convertible Preferred Stock, par value $0.001 per share of the Company and having the rights, privileges, preferences and restrictions set forth in the Charter.

(bb) "**Series C-1 Shares**" means shares of Series C-1 Convertible Preferred Stock, par value $0.001 per share of the Company and having the rights, privileges, preferences and restrictions set forth in the Charter.

(cc) "**Series C-2 Shares**" means shares of Series C-2 Convertible Preferred Stock, par value $0.001 per share of the Company and having the rights, privileges, preferences and restrictions set forth in the Charter.

(dd) "**Series D Shares**" means shares of Series D Convertible Preferred Stock, par value $0.001 per share of the Company and having the rights, privileges, preferences and restrictions set forth in the Charter.

(ee) "**Shareholders' Agreement**" means that certain Second Amended and Restated Shareholders' Agreement, dated as of March 24, 2017, by and among the Investors, the Company and the other parties thereto, as the same may be amended from time to time.

(ff) "**Shareholder Request**" shall have the meaning set forth in Section 2(a).

(gg) "**Subscription Agreement**" shall have the meaning set forth in the recitals.

(hh) "**Violation**" means any of the following statements, omissions or violations: (i) any untrue statement or alleged untrue statement of a material fact contained in a registration statement filed under or referred to in this Agreement, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto or any documents filed under state securities or "blue sky" laws in connection therewith, (ii) the omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading, or (iii) any violation or alleged violation by the Company of the Securities Act, the Exchange Act, any applicable state securities law or any rule or regulation promulgated under the Securities Act, the Exchange Act or any applicable state securities law arising from, relating to or in connection with the offer and sale of Registrable Securities pursuant to this Agreement.

2. Demand Registration.

(a) If the Company shall receive a request (each such request, an "**Investor Request**" and each requesting Investor, the "**Requesting Investor**") from either (i) the Holders of a majority of the Series D Shares, Series C-2 Shares, Series C-1 Shares and Series C Shares, together as a single class on an as-converted basis, at any time after the earlier of (x) 60 days

after the Initial Closing and (y) 180 days after the completion of an Initial Public Offering, or (ii) the Holders of a majority of the Series B Shares, together as a single class on an as-converted basis, at least 180 days after the completion of an Investor Request initiated by the Holders referred to in (i), in each case, that the Company file a registration statement under the Securities Act with respect to the proposed sale by such Requesting Investor of all or part of the Registrable Securities owned by such Requesting Investor. Promptly after receipt of the Investor Request, the Company shall, subject to Section 14, give written notice (the "**Notice of Investor Request**") of such Investor Request to all Holders and, subject to the limitations of Section 2(c) below, shall file (as expeditiously as practicable and in any event within sixty (60) days of its receipt) and use its best efforts to effect, a registration statement under the Securities Act with respect to all Registrable Securities that the Holders request to be registered (such requesting Holders together with the Requesting Investors, the "**Registering Shareholders**") within ten (10) business days of the receipt the applicable Holder of the Notice of Investor Request (delivered in accordance with Section 22) ; provided, however, that no Investor Request shall be effected from Holders referred to in clause (ii) above if the aggregate gross proceeds expected to be received from the sale of the Registrable Securities requested to be included by all Registering Shareholders in such Investor Request are less than $20,000,000 (unless such Registrable Securities identified in the Investor Request constitute all remaining Registrable Securities held by the Registering Shareholders). All requests made pursuant to this Section 2(a) will specify the aggregate number of the Registrable Securities to be registered and will also specify the intended methods of disposition thereof.

(b) If the Requesting Investors intend to distribute the Registrable Securities covered by their written request by means of an underwriting, they shall so advise the Company as a part of their Investor Request and the Company shall include such information in the Notice of Investor Request. In such event, the right of any Holder to include such Holder's Registrable Securities in such registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. The Holders of a majority in interest of the Registrable Securities participating in the underwriting, in consultation with the Company, shall select the managing underwriter or underwriters in such underwriting. All Holders proposing to distribute their securities through such underwriting shall (together with the Company as provided in Section 5(f)) enter into an underwriting agreement in customary form with the underwriter or underwriters so selected; provided, however, that (i) no Holder (or any of their assignees) shall be required to make any representations, warranties or indemnities except as they relate to such Holder's ownership of shares and authority to enter into the underwriting agreement and to such Holder's intended method of distribution, and the liability of such Holder shall be limited to an amount equal to the net proceeds from the offering received by such Holder, and (ii) each Holder shall be required to deliver all questionnaires, powers of attorney, escrow and custody agreements, legal opinions and other documents customarily required under the terms of such underwriting agreement. Notwithstanding any other provision of this Section 2, if the underwriter advises the Company and the Requesting Investor that, in its view, the number of shares of Registrable Securities requested to be included in such registration (including any securities that the Company proposes to be included that are not Registrable Securities) exceeds the largest number of shares that can be sold without having an adverse effect on such offering, including the price at which such shares can be sold (the "**Maximum Offering Size**"), the

Company shall include in such registration, in the priority order listed below, up to the Maximum Offering Size:

(i) first, all Registrable Securities requested to be registered by the Registering Shareholders (allocated, if necessary for the offering not to exceed the Maximum Offering Size, pro rata among the Registering Shareholders on the basis of the relative number of Registrable Securities so requested to be included in such registration by each); and

(ii) second, all Registrable Securities proposed to be registered by the Company.

(c) The Company shall be obligated to effect only eight (8) registrations pursuant to an Investor Request under Section 2 (it being understood that the Holders of a majority of the Series D Shares, Series C-2 Shares, Series C-1 Shares and Series C Shares, together as a single class on an as-converted basis, shall be entitled to request six (6) such registrations and the Holders of a majority of the Series B Shares, together as a single class on an as-converted basis, shall be entitled to request two (2) such registrations); provided, however, that in each case the Company shall be obligated to effect as many registrations as may be requested by Holders of Registrable Securities pursuant to any Investor Request in the event and so long as registration pursuant to Form S-3 or any similar "short-form" registration statement is available. The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Section 3 if the Company has effected two registrations pursuant to Section 3 within the twelve (12) month period immediately preceding the date of such request.

(d) At any time prior to the effective date of the registration statement relating to an Investor Request, the Requesting Investor may revoke such request for a registration, without liability to any of the other Holders, by providing a notice to the Company revoking such request.

(e) A registration under this Section 2 shall not be deemed to have occurred:

(i) unless the registration statement relating thereto (A) has become effective under the Securities Act and (B) has remained effective for a period of at least 180 days (or such shorter period in which all Registrable Securities of the Holders included in such

registration have actually been sold thereunder), *provided* that such registration statement shall not be considered a registration pursuant to an Investor Request if, after such registration statement becomes effective, (1) such registration statement is interfered with by any stop order, injunction or other order or requirement of the SEC or other governmental agency or court, or (2) less than sixty-six and two-thirds percent ($66^2/_3\%$) of the Registrable Securities included in such registration statement have been sold thereunder; or

(ii) if the number of Registrable Securities of the Requesting Shareholders included in the registration statement is reduced in accordance with Section 2(b) such that less than sixty-six and two-thirds percent ($66^2/_3\%$) of the

Registrable Securities of the Registering Shareholders sought to be included in such registration are included.

(f) Notwithstanding the foregoing obligations, if the Company furnishes to Holders requesting a registration pursuant to this Section 2 a certificate signed by the Company's chief executive officer stating that in the good faith judgment of the Company's board of directors it would be materially detrimental to the Company and its stockholders for such registration statement to either become effective or remain effective for as long as such registration statement otherwise would be required to remain effective, because such action would (i) materially interfere with a significant acquisition, corporate reorganization, or other similar transaction involving the Company; (ii) require premature disclosure of material information that the Company has a bona fide business purpose for preserving as confidential; or (iii) render the Company unable to comply with requirements under the Securities Act or Exchange Act, then the Company shall have the right to defer taking action with respect to such filing, and any time periods with respect to filing or effectiveness thereof shall be tolled correspondingly, for a period of not more than sixty (60) days after the request of the Requesting Investors is given; provided, however, that the Company may not invoke this right more than twice in any twelve (12) month period; and provided further that the Company shall not register any securities for its own account or that of any other stockholder during such period.

3. Registrations on Form S-3.

If at any time when it is eligible to use a Form S-3 registration statement, the Company receives a request from Holders of at least twenty percent (20%) of the Registrable Securities then outstanding that the Company file a Form S-3 registration statement with respect to outstanding Registrable Securities of such Holders having an anticipated aggregate offering price of at least $20,000,000, then the Company shall (i) within ten (10) days after the date such request is given, give written notice (the "**Form S-3 Notice**") of such request to all Holders other than the Requesting Investors; and (ii) as soon as practicable, and in any event within thirty (30) days after the date such request is given by the Requesting Investors, file a Form S-3 registration statement under the Securities Act covering all Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Form S-3 Notice is given, and in each case, subject to the limitations of Section 2(b); *provided* that in the case of registration of Registrable Securities on Form S-3 that are intended to be offered on a continuous or delayed basis, subject to compliance with applicable SEC rules, once the registration statement relating thereto has remained effective under the Securities Act for a period of at least 180 days (or such shorter period in which all Registrable Securities of the Holders included in such registration have actually been sold thereunder), such 180 day period shall be extended to 180 days after the second anniversary of the date on which such Form S-3 becomes effective (or such shorter period in which all Registrable Securities of the Holders included in such registration have actually been sold thereunder).

4. Piggy-Back Registration.

If the Company proposes to register (including for this purpose a registration effected by the Company for shareholders other than the Investors under Section 2) any of the Registrable Securities under the Securities Act in connection with the public offering of such securities solely for cash (other than a registration on Form S-8 (or similar or successor form or other registration form that would not permit the registration of the Registrable Securities) relating solely to the sale of securities to participants in a Company stock plan or to other compensatory arrangements to the extent includable on Form S-8 (or similar or successor form or other registration form that would not permit the registration of the Registrable Securities)), the Company shall, at such time, promptly give each Holder written notice of such registration. Upon the written request of each Holder given within thirty (30) days after mailing of such notice by the Company in accordance with Section 22, the Company shall, subject to the provisions of Section 9, use its best efforts to cause to be registered under the Securities Act all of the Registrable Securities that each such Holder has requested to be registered; provided, however, that no Holder shall be entitled to register any of its Registrable Securities pursuant to this Section 4 in an Initial Public Offering unless a Holder of Series D Shares, Series C-2 Shares, Series C-1 Shares or Series C Shares is participating as a seller of Registrable Securities in such Initial Public Offering. The Company shall have no obligation under this Section 4 to make any offering of its securities, or to complete an offering of its securities that it proposes to make.

5. Obligations of the Company.

Whenever required under this Agreement to effect the registration of any Registrable Securities, the Company shall, as expeditiously as reasonably possible:

(a) prepare and file as promptly as possible with the SEC a registration statement on any form for which the Company then qualifies or that counsel for the Company shall deem appropriate and which form shall be available for the sale of the Registrable Securities to be registered thereunder in accordance with the intended method of distribution thereof and use its best efforts to cause such registration statement to become effective, and, upon the request of the Holders of a majority of the Registrable Securities being registered thereunder, keep such registration statement effective for up to 180 days or until the Holders have completed the distribution referred to in such registration statement, whichever occurs first (but in any event for at least any period required under the Securities Act); *provided* that (A) before filing such registration statement or any amendments thereto, the Company shall furnish to the Holders copies of all such documents proposed to be filed; and (B) in the case of registration of Registrable Securities on Form S-3 that are intended to be offered on a continuous or delayed basis, subject to compliance with applicable SEC rules, such 180 day period shall be extended to 180 days after the second anniversary of the date on which such Form S-3 becomes effective;

(b) prepare and file with the SEC such amendments (including post-effective amendments) and supplements to such registration statement and the prospectus used in connection with such registration statement as may be necessary to comply with the provisions of the Securities Act with respect to the

disposition of all securities covered by such registration statement and make all required filings of such amendments or supplements as soon as reasonably practicable after being notified of the matters to be incorporated in such amendments

or supplements; provided, that, before filing such amendments or supplements, the Company shall furnish to the Holders copies of all such documents proposed to be filed;

(c) furnish to the Holders such number of copies of such registration statement and of each amendment and supplement thereto (in each case including all exhibits), such number of copies of the prospectus contained in such registration statement (including each preliminary prospectus, summary prospectus and prospectus supplement), in conformity with the requirements of the Securities Act, and such other documents as Holders may reasonably request in order to facilitate the disposition of Registrable Securities owned by them;

(d) use its best efforts to register and qualify the securities covered by such registration statement for offer and sale under such other securities or "blue sky" laws of such states or jurisdictions as shall be reasonably requested by the Holders and to do and take all other actions that be necessary or advisable to enable the Holder to consummate the disposition of such Registrable Securities in such jurisdictions; provided, that, the Company shall not be required in connection therewith or as a condition thereto (i) to qualify to do business in any state or jurisdiction where it would not otherwise be required to qualify but for the requirements of this clause (d), or (ii) to file a general consent to service of process in any such state or jurisdiction;

(e) use best efforts to cause all Registrable Securities covered by such registration statement to be registered with or approved by such other governmental agencies or authorities as may be necessary by virtue of the Company's business or operations to enable the seller or sellers thereof to consummate the disposition of such Registrable Securities;

(f) in the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form (including as to representations and warranties and indemnification), with the managing underwriter of such offering;

(g) promptly notify each Holder of Registrable Securities covered by such registration statement, at any time when a prospectus relating thereto is required to be delivered under the Securities Act, of the happening of any event of which it has knowledge as a result of which the prospectus included in such registration statement, as then in effect, includes an untrue statement of a material fact or omits to state a material fact required to be stated therein or necessary to make the statements therein not misleading in the light of the circumstances then existing;

(h) promptly notify each Holder of Registrable Securities covered by such registration statement and such Holder's underwriters, if any, and confirm such advice in writing: (i) when the registration statement has become effective, (ii) when any post-effective amendment to the registration statement becomes effective and (iii) of any request by the SEC for any amendment or supplement to the registration statement or prospectus or for additional information;

(i) promptly notify each Holder of Registrable Securities if at any time the SEC institutes or threatens to institute any proceedings for the purpose of issuing a stop order suspending the effectiveness of the registration statement, and the Company shall use its best efforts to prevent the issuance of any such stop order or to obtain the withdrawal thereof as soon as possible;

(j) advise each Holder of Registrable Securities promptly of any order or communication of any public board or body addressed to the Company suspending or threatening to suspend the qualification of any Registrable Securities for sale in any jurisdiction;

(k) furnish, at the request of the Holders of a majority of the Registrable Securities being included in any such registration of Registrable Securities pursuant to this Agreement and to the underwriter, if any, (i) on the date of the closing under the underwriting agreement, if such securities are being sold through underwriters, or, if such securities are not being sold through underwriters, on the date that the registration statement with respect to such securities becomes effective, an opinion or opinions, dated such date, of the counsel representing the Company for the purposes of such registration, in form, scope and substance as is customarily given to such Holders or underwriters, as the case may be, addressed to the underwriters, if any, or to the Holders requesting registration of Registrable Securities and (ii) on the date of execution of the underwriting agreement, a "cold comfort" letter dated such date, from the independent certified public accountants of the Company, in form and substance as is customarily given by independent certified public accountants to underwriters in an underwritten public offering, addressed to the underwriters, if any, and to the Holders requesting registration of Registrable Securities, and, if such securities are being sold through underwriters, a bring down of such letter to the closing date under the underwriting agreement;

(l) make available for inspection by the Holder, by any underwriter participating in any disposition to be effected pursuant to such registration statement and by any attorney, accountant or other agent retained by the Holder or any such underwriters, such financial and other records, corporate documents and properties of the Company as are customarily made available in connection with a "due diligence" investigation for an underwritten secondary offering, provided, however, that the Holder and the underwriters shall have entered into a confidentiality agreement reasonably acceptable to the Company;

(m) cause all such Registrable Securities to be listed on any securities exchange or quotation system on which any of the Company Common Shares is then listed, if such Registrable Securities are not already so listed and if such listing is then permitted under the rules of such exchange or trading system;

(n) cooperate with the Holder and the managing underwriter, underwriters or agents, if any, to facilitate the timely preparation and delivery of certificates representing Registrable Securities to be sold and not bearing any restrictive legends; and enable such Registrable Securities to be in such denominations and registered in such names as such managing underwriter, underwriters or agents may request at least two business days prior to the settlement date of any sale of Registrable Securities;

(o) cooperate with the Holder and each underwriter or agent, if any, participating in the disposition of such Registrable Securities and their respective counsel in connection with any filings required to be made with FINRA;

(p) provide and cause to be maintained a transfer agent, depositary and registrar for all Registrable Securities covered by such registration statement from and after a date not later than the effective date of such registration statement;

(q) as soon as practicable after the effective date of the registration statement, and in any event within sixteen (16) months thereafter, have "made generally available to its security holders" (within the meaning of Rule 158 under the Securities Act) an earnings statement (which need not be audited) covering a period of at least twelve (12) months beginning after the effective date of the registration statement and otherwise complying with Section 11(a) of the Securities Act and Rule 158 thereunder;

(r) cause the senior executive officers of the Company to (i) prepare and make presentations at any "road shows" and before analysts and rating agencies, as the case may be, (ii) take other actions to obtain ratings for any Registrable Securities and (iii) otherwise use their reasonable best efforts to cooperate as reasonably requested by the underwriters in the offering, marketing or selling of the Registrable Securities;

(s) make such representations and warranties to the Holders of Registrable Securities being registered, and the underwriters or agents, if any, in form, substance and scope as are customarily made by issuers in underwritten public offerings; and

(t) enter into such customary agreements (including underwriting and indemnification agreements) and take all such other actions as the Investors or the managing underwriter or underwriters, if any, reasonably request in order to expedite or facilitate the registration and disposition of such Registrable Securities.

6. Furnish Information.

It shall be a condition precedent to the obligations of the Company to take any action pursuant to this Agreement with respect to the Registrable Securities of any selling Holder that such Holder shall furnish to the Company such information regarding itself, the Registrable Securities held by it, and the intended method of disposition of such securities as shall be required to effect the registration of such Holder's Registrable Securities. If any registration statement or comparable statement under the Securities Act refers to an Investor or any of its Affiliates, by name or otherwise, as the holder of any securities of the Company then, unless counsel to the Company advises the Company that the Securities Act requires that such reference be included in any such statement, each such Holder shall have the right to require the deletion of such reference to itself and its Affiliates.

7. Expenses of Demand Registration.

All expenses incident to the Company's performance of or compliance with this Agreement shall be paid by the Company, including, without limitation, (i) all registration and

filing fees, and any other fees and expenses associated with filings required to be made with the SEC or FINRA, (ii) all fees and expenses in connection with compliance with any securities or "Blue Sky" laws, (iii) all printing, duplicating, word processing, messenger, telephone, facsimile and delivery expenses (including expenses of printing certificates for the Registrable Securities in a form eligible for deposit with The Depository Trust Company and of printing prospectuses), (iv) all fees and disbursements of counsel for the Company (including the expenses of any opinions provided to Holders or underwriters) and of all certified public accountants of the Company (including the expenses of any special audit and cold comfort letters required by or incident to such performance), (v) Securities Act liability insurance or similar insurance if the Company so desires or the underwriters so require in accordance with then-customary underwriting practice, (vi) all fees and expenses incurred in connection with the listing of the Registrable Securities on any securities exchange or quotation of the Registrable Securities on any inter-dealer quotation system, (vii) all applicable rating agency fees with respect to the Registrable Securities, (viii) other than with respect to any revoked registration pursuant to Section 2(d), the fees and expenses of one counsel for the Holders of Registrable Securities designated by the Holder of a majority of Registrable Securities being registered, or proposed to be registered, in any offering pursuant to the terms hereof, and the fees and expenses of counsel for each of the Avista Entities and any other Holders participating in such registration solely relating to the preparation and delivery of legal opinions for the Avista Entities or such Holders, as the case may be, in any such offering, (ix) any reasonable fees and disbursements of underwriters customarily paid by issuers or sellers of securities, (x) all fees and expenses of any special experts or other persons retained by the Company in connection with any registration, and (xi) all of the Company's internal expenses (including all salaries and expenses of its officers and employees performing legal or accounting duties). All such expenses are referred to herein as "**Registration Expenses**". The Company shall not be required to pay any fees and disbursements to underwriters not customarily paid by issuers of securities, including underwriting discounts and commissions and transfer taxes, if any, attributable to the sale of Registrable Securities.

8. Expenses of Company Registration.

The Company shall bear and pay all reasonable and customary Registration Expenses incurred in connection with any registration, filing or qualification of Registrable Securities with respect to the registrations pursuant to Section 4 for each Holder, but excluding underwriting discounts and commissions and transfer taxes, if any, relating to Registrable Securities.

9. Underwriting Requirements.

In connection with any offering initiated by the Company involving an underwriting of shares being issued by the Company, the Company shall not be required under Section 4 to include any Holder's securities in such underwriting unless such Holder accepts the terms of the underwriting as agreed upon between the Company and the underwriters, and then only in such quantity as will not, in the opinion of the underwriters, exceed the Maximum Offering Size; provided, however, that no Holder participating in such underwriting shall be required to make any representations, warranties or indemnities except as they relate to such

Holder's ownership of shares and authority to enter into the underwriting agreement and to such Holder's intended method of distribution, and the liability of such Holder shall be limited to an amount equal to the net proceeds from the offering received by such Holder. If requested by the underwriters for any underwritten offering requested by Holders of Registrable Securities pursuant to a registration under Section 2, the Company shall enter into an underwriting agreement with such underwriters for such offering, such agreement to be reasonably satisfactory in substance and form to the Company, the Requesting Investors and the underwriters, and to contain such representations and warranties by the Company and such other terms as are generally prevailing in agreements of that type, including indemnities no less favorable to the recipient than those provided in Section 10. Holders of Registrable Securities proposed to be distributed by such underwriters shall be parties to such underwriting agreement, which underwriting agreement shall contain such representations and warranties by, and the other agreements on the part of, the Company to and for the benefit of such Holders of Registrable Securities as are customarily made by issuers to selling stockholders in underwritten public offerings; provided, however, that (i) no Holder (or any of their assignees) shall be required to make any representations, warranties or indemnities except as they relate to such Holder's ownership of shares and authority to enter into the underwriting agreement and to such Holder's intended method of distribution, and the liability of such Holder shall be limited to an amount equal to the net proceeds from the offering received by such Holder, and (ii) each Holder shall be required to deliver all questionnaires, powers of attorney, escrow and custody agreements, legal opinions and other documents customarily required under the terms of such underwriting agreement. If the total number of securities, including Registrable Securities, requested by shareholders to be included in such offering (or in any other offering in which Holders shall have the right to include Registrable Securities pursuant to Section 4) exceeds the Maximum Offering Size, then the Company shall include in such offering, in the priority listed below, up to the Maximum Offering Size: (A) *first*, that number of shares sought to be registered by the Company, (B) *second*, among all Holders of Registrable Securities that have elected to participate in such underwritten offering, in proportion (as nearly as practicable) to the amount of Registrable Securities requested to be included by such Holders and (C) *thereafter*, to the extent additional securities may be included in such offering, to other selling shareholders, if any, pro rata according to the total number of securities entitled to be included therein owned by each such other selling shareholder or in such other proportions as shall mutually be agreed to by such other selling shareholders.

10. Indemnification.

In the event any Registrable Securities are included in a registration statement under this Agreement:

(a) The Company will indemnify and hold harmless each Holder, its heirs, personal representatives and assigns, each of such Holder's officers, directors, partners, members, managers, employees and affiliates, any underwriter (as defined in the Securities Act) for such Holder and each Person, if any, who controls such Holder or underwriter within the meaning of the Securities Act or the Exchange Act against any losses, claims, damages or liabilities (joint or several) to which they may become subject under the Securities Act, the Exchange Act or other federal or state law, insofar as such losses, claims, damages or liabilities (or actions in respect

thereof) arise out of or are based upon a Violation; and the Company will pay to each such indemnified party, as incurred, any legal or other expenses reasonably incurred by them in connection with investigating or defending any such loss, claim, damage, liability, or action; provided, however, that the indemnity agreement contained in this Section 10(a) shall not cause the Company to be liable in any such case to a particular indemnified party for any such loss, claim, damage, liability or action to the extent that it arises out of or is based upon a Violation which occurs in reliance upon and in conformity with written information furnished expressly for use in connection with such registration by such indemnified party.

(b) Each selling Holder will indemnify and hold harmless, severally and not jointly, the Company, each of its directors, each of its officers who has signed the registration statement, each Person, if any, who controls the Company within the meaning of the Securities Act, any underwriter, any other Holder selling securities in such registration statement and any controlling Person of any such underwriter or other Holder, against any losses, claims, damages or liabilities (joint or several) to which any of the foregoing Persons may become subject, under the Securities Act, the Exchange Act or other federal or state law, insofar as such losses, claims, damages or liabilities (or actions in respect thereto) arise out of or are based upon any Violation, in each case to the extent (and only to the extent) that such Violation occurs in reliance upon and in conformity with written information furnished by such Holder expressly for use in connection with such registration; and each such Holder will pay, as incurred, any legal or other expenses reasonably incurred by any Person intended to be indemnified pursuant to this Section 10(b), in connection with investigating or defending any such loss, claim, damage, liability, or action; provided, however, that the indemnity agreement contained in this Section 10(b) shall not apply to amounts paid in settlement of any such loss, claim, damage, liability or action if such settlement is effected without the consent of the Holder, which consent may be withheld in the sole and absolute discretion of the Holder; and provided further, that, in no event shall the liability of any Holder under this Section 10(b) exceed the net proceeds from the offering received by such Holder.

(c) Promptly after receipt by an indemnified party under this Section 10 of notice of the commencement of any action (including any governmental action), such indemnified party shall, if a claim in respect thereof is to be made against any indemnifying party under this Section 10, deliver to the indemnifying party a written notice of the commencement thereof and the indemnifying party shall have the right to participate in, and, to the extent the indemnifying party so desires, jointly with any other indemnifying party similarly noticed, to assume the defense thereof with counsel mutually satisfactory to the parties, acting reasonably; provided, however, that an indemnified party shall have the right to retain its own counsel, with the fees and expenses to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual or potential conflicts of interests between such indemnified party and any other party represented by such counsel in such proceeding. The failure to deliver written notice to the indemnifying party within a reasonable time of the commencement of any such action shall not relieve such indemnifying party of any liability to the indemnified party under this Section 10 or of any liability that it may have to any indemnified party otherwise than under this Section 10 unless, and then solely to the extent that, the indemnifying party is prejudiced thereby. An indemnifying party may settle any action or claim under this Section 10 at any time without the consent of the

indemnified party so long as such settlement involves no cost or liability to the indemnified party and includes an unconditional release of the indemnified party from all liability with respect to such claim or action.

(d) The obligations of the Company and Holders under this Section 10 shall survive the completion of any offering of Registrable Securities in a registration statement under this Agreement, and otherwise.

(e) Any indemnity agreements contained herein shall be in addition to any other rights to indemnification or contribution which any indemnified party may have pursuant to law or contract and shall remain operative and in full force and effect regardless of any investigation made or omitted by or on behalf of any indemnified party. The Company shall also indemnify underwriters, selling brokers, dealer managers and similar securities industry professionals participating in the distribution, their officers and directors and each person who controls such persons (within the meaning of the Securities Act and Exchange Act) to the same extent as provided above in Section 10(a) with respect to the indemnification of the indemnified parties or as otherwise reasonably requested by such persons.

(f) If a court of competent jurisdiction holds that the foregoing indemnity is unavailable, then the indemnifying party shall contribute to the amount paid or payable by the indemnified party as a result of such losses, claims, damages, liabilities or expenses (i) in such proportion as is appropriate to reflect the relative benefits received by the indemnifying party on the one hand and the indemnified party on the other (taking into consideration, among other things, the fact that the provision of the registration rights and indemnification hereunder is a material inducement to the Investors to purchase Registrable Securities pursuant to the Subscription Agreement) or (ii) if the allocation provided by clause (i) above is not permitted by applicable law or provides a lesser sum to the indemnified party than the amount hereinafter calculated, in such proportion as is appropriate to reflect the relative fault of the indemnifying party and the indemnified party as well as any other relevant equitable considerations. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by or on behalf of the indemnifying party or the indemnified party and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such untrue statement or omission. No Person guilty of fraudulent misrepresentation (within the meaning of Section 12(f) of the Securities Act) shall be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation. Notwithstanding anything to the contrary in this Section 10, no Holder shall be required, pursuant to this Section 10, to contribute any amount in excess of the net proceeds received by such indemnifying party from the sale of securities in the offering to which the losses, claims, damages, liabilities or expenses of the indemnified party relate.

11. Reports Under the Exchange Act.

With a view to making available to the Holders the benefits of Rule 144 under the Securities Act and any other rule or regulation of the SEC that may at any time permit a Holder to sell securities of the Company to the public without registration or pursuant to a registration

on Form S-3, the Company agrees at all times after any registration statement covering a public offering of securities of the Company under the Securities Act shall have become effective, to:

(a) make and keep available adequate current public information with respect to the Company, as those terms are understood and defined in Rule 144 under the Securities Act;

(b) use its best efforts (without unreasonable expense) to comply with the SEC's eligibility requirements for use of Form S-3;

(c) file with the SEC in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act; and

(d) furnish to any Holder, so long as the Holder owns any Registrable Securities, forthwith upon request (i) a written statement by the Company that it has complied with the adequate current public information requirements of Rule 144 under the Securities Act (at any time after the effective date of the first registration statement filed by the Company) and the Securities Act and Exchange Act (at any time after it has become subject to such reporting requirements) or that it qualifies as a registrant whose securities may be resold pursuant to Form S-3 (at any time it so qualifies), (ii) a copy of the most recent annual or quarterly report of the Company and such other reports and documents so filed by the Company with the SEC, and (iii) such other information as may be reasonably requested in availing any Holder of any rule or regulation of the SEC which permits the selling of any such securities without registration or pursuant to such form.

12. Assignment of Registration Rights.

(a) Prior to an Initial Public Offering, any Holder may assign its rights hereunder in connection with a transfer shares to the extent permitted under the Shareholders' Agreement.

(b) Following an Initial Public Offering, any Holder may assign its rights hereunder to persons who acquire Registrable Securities (and the same remain Registrable Securities after such acquisition) from such Holder, provided that no such assignment shall be binding upon or obligate the Company or the Holders hereunder to any such assignee unless and until the Company shall have received notice of such assignment and a written agreement of the assignee to be bound by the provisions of this Agreement (it being understood that the Company shall deliver such notice and agreement to the other Holders hereunder).

13. No Other Registration Rights; Limitations on Subsequent Registration Rights.

The Company represents and warrants to each Investor that, upon the execution of this Agreement by all of the parties hereto, no "registration rights" relating to securities of the Company and granted by the Company exist on the date of this Agreement other than pursuant to this Agreement. From and after the date of this Agreement, the Company shall not, without the prior written consent of Investors holding a majority of the Registrable Securities then outstanding, enter into any agreement with any holder or prospective holder of any securities of the Company that would allow such holder or prospective holder (a) to include such securities in any registration filed under this Agreement, unless under the terms of such agreement, such

holder or prospective holder may include such securities in any such registration only to the extent that the inclusion of such holder's securities will not reduce the amount of the Registrable Securities of any Investor which is included therein or (b) to request a registration of such Holder's securities.

14. "Market Stand-Off" Agreement.

Each of the Company and each Holder agrees that, during the period of ninety (90) days (or, in the case of an underwritten offering, such lesser period as the managing underwriters may permit, it being understood that the Company shall request for the benefit of the Holders that such managing underwriter act in good faith in determining whether to permit a shorter period) following the effective date of a registration statement of the Company filed under the Securities Act in connection with an underwritten offering (and, in the case of the initial public offering of the Company's securities, one hundred eighty (180) days), which periods may be extended upon the request of the managing underwriter, to the extent required by any FINRA rules, for an additional period of up to fifteen (15) days if the Company issues or proposes to issue an earnings or other public release within fifteen (15) days of the expiration of such lockup period (or, in the case of an underwritten offering, such lesser period as the managing underwriters may permit, it being understood that the Company shall request for the benefit of the Holders that such managing underwriter act in good faith in determining whether to permit a shorter period), it shall not, if requested by such underwriter, sell or otherwise transfer or dispose of (other than to donees, Affiliates, partners or members who agree to be similarly bound) any Common Shares or any securities of the Company convertible into Common Shares held by it except Registrable Securities included in such registration. The foregoing provisions shall be applicable to the Series D Shares only if all officers, directors, and stockholders individually owning more than one percent (1%) of the Common Shares (after giving effect to conversion into Common Shares of all outstanding Preferred Shares) are subject to the same restrictions, and only with respect to the initial public offering of the Company's securities, and only with respect to Series D Shares held immediately before the effective date of the registration statement for such initial public offering. Each Holder further agrees to execute such agreements as may be reasonably requested by the underwriters in connection with such registration that are consistent with this Section 14 or that are necessary to give further effect thereto. Any discretionary waiver or termination of the restrictions of any or all of such agreements by the Company or the underwriters shall apply pro rata to all Holders subject to such agreements, based on the number of shares subject to such agreements.

15. Amendment; Waiver.

Any provision of this Agreement may be amended, terminated or waived only with the written consent of the Company and the Holders holding a majority of the Registrable Securities then held by such Holders; provided, however, that no amendment to this Agreement that adversely affects the rights or obligations of any particular Holder but does not similarly affect the rights or obligations of the other Holders shall be effected without the consent of such affected Holder; and provided further that the provisions of Section 14 may not be amended, terminated or waived without the written consent of the holders of at least a majority of the Registrable Securities issued or issuable upon conversion of the Series D Shares only if such

amendment, termination or waiver is applicable to Series D Shares. The observance of any provision of this Agreement may be waived (either generally or in a particular instance and either retroactively or prospectively) only with the written consent of the party to be charged; provided, that the Holders of a majority of the Registrable Securities then outstanding may act on behalf of all Holders of Registrable Securities so long as such waiver applies to all Holders in the same manner. Any amendment or waiver effected in accordance with this Section 15 shall be binding upon (i) each Holder of Registrable Securities at the time outstanding, (ii) each future Holder of all such securities, and (iii) the Company. Notwithstanding the foregoing, Schedule A hereto may be amended by the Company from time to time in accordance with Section 28 to add information regarding additional Investors without the consent of the other parties hereto.

16. Changes in Registrable Securities.

If, and as often as, there are any changes in the Registrable Securities by way of stock split, stock dividend, combination or reclassification, or through merger, consolidation, reorganization or recapitalization, or by any other means, appropriate adjustment shall be made in the provisions of this Agreement, as may be required, so that the rights and privileges granted hereby shall continue with respect to the Registrable Securities as so changed. Without limiting the generality of the foregoing, the Company shall require any successor by merger or consolidation to assume and agree to be bound by the terms of this Agreement, as a condition to any such merger or consolidation.

17. Entire Agreement.

This Agreement and the documents referred to herein constitute the entire agreement among the parties relating to the subject matter hereof, and supercede in their entirety any and all prior and/or contemporaneous agreements, understandings or representations relating to the subject matter hereof, whether written or oral. No party shall be liable or bound to any other party in any manner by any warranties, representations, or covenants except as specifically set forth herein or therein.

18. Governing Law.

This Agreement and all claims or causes of action that may be based upon, arise out of or relate to this Agreement will be governed by, and construed under and in accordance with, the internal laws of the State of New York, without reference to rules relating to conflicts of laws.

19. Submission to Jurisdiction.

(a) EACH OF THE PARTIES HERETO HEREBY CONSENTS TO THE EXCLUSIVE JURISDICTION OF ALL STATE AND FEDERAL COURTS LOCATED IN NEW YORK COUNTY, NEW YORK, WITH RESPECT TO ANY CLAIMS MADE HEREUNDER, AS WELL AS TO THE JURISDICTION OF ALL COURTS TO WHICH AN APPEAL MAY BE TAKEN FROM SUCH COURTS, FOR THE PURPOSE OF ANY SUIT, ACTION OR OTHER PROCEEDING ARISING OUT OF, OR IN CONNECTION WITH, THIS AGREEMENT OR ANY OF THE TRANSACTIONS CONTEMPLATED HEREBY.

EACH PARTY HEREBY EXPRESSLY WAIVES ANY AND ALL RIGHTS TO BRING ANY SUIT, ACTION OR OTHER PROCEEDING IN OR BEFORE ANY COURT OR TRIBUNAL OTHER THAN THE COURTS DESCRIBED ABOVE AND COVENANTS THAT IT SHALL NOT SEEK IN ANY MANNER TO RESOLVE ANY DISPUTE OTHER THAN AS SET FORTH IN THIS SECTION 19 OR TO CHALLENGE OR SET ASIDE ANY DECISION, AWARD OR JUDGMENT OBTAINED IN ACCORDANCE WITH THE PROVISIONS HEREOF.

(b) EACH OF THE PARTIES HERETO HEREBY EXPRESSLY WAIVES ANY AND ALL OBJECTIONS IT MAY HAVE TO VENUE, INCLUDING, WITHOUT LIMITATION, THE INCONVENIENCE OF SUCH FORUM, IN ANY OF SUCH COURTS. IN ADDITION, EACH OF THE PARTIES FURTHER AGREES THAT SERVICE OF ANY PROCESS, SUMMONS, NOTICE OR DOCUMENT BY U.S. REGISTERED MAIL TO SUCH PARTY'S RESPECTIVE ADDRESS SET FORTH IN THIS AGREEMENT SHALL BE EFFECTIVE SERVICE OF PROCESS FOR ANY ACTION IN NEW YORK WITH RESPECT TO ANY MATTERS TO WHICH IT HAS SUBMITTED TO JURISDICTION HEREUNDER.

20. WAIVER OF JURY TRIAL.

EACH PARTY HERETO ACKNOWLEDGES AND AGREES THAT ANY CONTROVERSY WHICH MAY ARISE UNDER THIS AGREEMENT IS LIKELY TO INVOLVE COMPLICATED AND DIFFICULT ISSUES, AND THEREFORE IT HEREBY IRREVOCABLY AND UNCONDITIONALLY WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LITIGATION DIRECTLY ARISING OUT OF OR RELATING TO THIS AGREEMENT AND ANY OF THE AGREEMENTS DELIVERED IN CONNECTION HEREWITH OR THE TRANSACTIONS CONTEMPLATED HEREBY OR THEREBY. EACH PARTY HERETO CERTIFIES AND ACKNOWLEDGES THAT (A) NO REPRESENTATIVE, AGENT OR ATTORNEY OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT, IN THE EVENT OF LITIGATION, SEEK TO ENFORCE SUCH WAIVER, (B) IT UNDERSTANDS AND HAS CONSIDERED THE IMPLICATIONS OF SUCH WAIVER, (C) IT MAKES SUCH WAIVER VOLUNTARILY, AND (D) IT HAS BEEN INDUCED TO ENTER INTO THIS AGREEMENT BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 20.

21. Successors and Assigns.

The provisions of this Agreement shall inure to the benefit of, and be binding upon, the successors, permitted assigns (as provided in Section 12), heirs, executors and administrators of the parties hereto.

22. Notices.

Unless otherwise provided, all notices, requests, consents, demands and other communications under this Agreement shall be in writing and shall be sent by registered or certified mail, return receipt requested, postage prepaid or via a reputable nationwide overnight

courier service guaranteeing next business day delivery, and shall be deemed effectively given upon receipt by the party to be notified (including by facsimile, receipt confirmed) in each case to the intended recipient as follows: (a) if to a party other than the Company, at such party's address set forth in Schedule A or at such other address as such party shall have furnished the Company in writing, or, until any such party so furnishes an address to the Company, then to and at the address of the last holder of the shares covered by this Agreement who has so furnished an address to the Company, or (b) if to the Company, at its address set forth in Schedule A, or at such other address as the Company shall have furnished to the parties in writing.

23. Severability.

If one or more provisions of this Agreement are held to be unenforceable under applicable law, such provision shall be excluded from this Agreement, and the balance of the Agreement shall be interpreted as if such provision were so excluded, and shall be enforceable in accordance with its terms.

24. Descriptive Headings.

The section headings contained in this Agreement are for convenience of reference only and shall not affect the meaning or interpretation of this Agreement.

25. Delays or Omissions; Remedies Cumulative.

It is agreed that no delay or omission to exercise any right, power or remedy accruing to the parties shall impair any such right, power or remedy, nor shall it be construed to be a waiver of any such breach or default, or any acquiescence therein, or of any similar breach or default thereafter occurring; nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. Any waiver, consent or approval of any kind or character by a party of any breach or default under this Agreement, or any waiver by a party of any provisions or conditions of this Agreement must be in writing and shall be effective only to the extent specifically set forth in writing and that all remedies, either under this Agreement, or by law or otherwise afforded to a party, shall be cumulative and not alternative.

26. Attorneys' Fees.

If any action at law or in equity is necessary to enforce or interpret the terms of this Agreement, the prevailing party shall be entitled to reasonable attorney's fees, costs and necessary disbursements in addition to any other relief to which such party may be entitled.

27. Counterparts; Facsimile Transmission.

This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original but all of which shall constitute one and the same agreement. Each party to this Agreement agrees that its own facsimile signature will bind it and that it accepts the facsimile signature of each other party to this Agreement.

28. Additional Holders.

Persons or entities that, after the date hereof, purchase Series D Shares at a subsequent closing under the Subscription Agreement shall become parties to this Agreement by executing and delivering a joinder agreement substantially in the form and substance reasonably acceptable to the Company, whereupon they shall be deemed an "Investor" and "Holder" for all purposes of this Agreement. The Company shall cause Schedule A to be updated to reflect the name of such new Investor promptly following such execution of the joinder agreement pursuant to this Section 28.

[Signature page follows.]

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first above written.

OPTINOSE, INC.

By: /s/ Peter Miller
Name: Peter Miller
Title: Chief Executive Officer

AVISTA CAPITAL PARTNERS II, LP

By: Avista Capital Partners GP II, LLC, as general partner

By: /s/ Ben Silbert
Name: Ben Silbert
Title: General Counsel

AVISTA CAPITAL PARTNERS (OFFSHORE) II, LP

By: Avista Capital Partners GP II, LLC, as general partner

By: /s/ Ben Silbert
Name: Ben Silbert
Title: General Counsel

AVISTA CAPITAL PARTNERS (OFFSHORE) II-A, LP

By: Avista Capital Partners GP II, LLC, as general partner

By: /s/ Ben Silbert
Name: Ben Silbert
Title: General Counsel

TKWD VENTURES LLC

By: WFD Ventures LLC, its Manager

By: /s/ William F. Doyle
Name: William F. Doyle
Title: Manager

WILLIAM F. DOYLE

Signed: /s/ William F. Doyle

IKOS SUBSIDIARY AS

By: /s/ Per Gisle Djupesland
Name: Per Gisle Djupesland
Title: Chairman

By: /s/ Helena Kyttari Djupesland
Name: Helena Kyttari Djupesland
Title: Board Member

IKOS INVEST AS

By: /s/ Per Gisle Djupesland
Name: Per Gisle Djupesland
Title: Chairman

By: /s/ Helena Kyttari Djupesland
Name: Helena Kyttari Djupesland
Title: Board Member

ENTREPRENEURS' FUND GENERAL PARTNER LIMITED,
in its capacity as general partner of Entrepreneurs' Fund LP

By: /s/ Colin Dow
Name: Colin Dow
Title: Director

By: /s/ Paul Bradshaw
Name: Paul Bradshaw
Title: Director

LARRY PICKERING

Signed: /s/ Larry Pickering

PATRICK O'NEILL

Signed: /s/ Patrick O'Neill

Address:

ROBERT JUNEJA

Signed: /s/ Robert Juneja

Address:

GWYNETH M. KETTERER

Signed: /s/ Gwyneth M. Ketterer

Address:

RICHARD L. PERKAL

Signed: /s/ Richard L. Perkal

Address:

TERRANCE TERIFAY

Signed: /s/ Terrance Terifay

Address:

CARTER GRIFFIN

Signed: /s/ Carter Griffin

Address:

DAVID E. KING

Signed: /s/ David E. King

Address:

PAUL STEVEN LATTANZIO

Signed: /s/ Paul Steven Lattanzio

Address:

JOHN DAVID HOWARD

Signed: /s/ John David Howard

Address:

BODIL M. ARLANDER

Signed: /s/ Bodil M. Arlander

Address:

FRANK CLOSURDO

Signed: /s/ Frank Closurdo

Address:

PETER MILLER

Signed: /s/ Peter Miller

Address:

RAMY MAHMOUD

Signed: /s/ Ramy Mahmoud

Address:

MICHELE JANIS

Signed: /s/ Michelle Janis

Address:

ROBERT USELLER

Signed: /s/ Robert Useller

JAMES T. LENEHAN

Signed: /s/ James T. Lenehan

Address:

FRANK LEONARD

Signed: /s/ Frank Leonard

Address:

INSPIRE AS

By: /s/ Jan-Olaf Willums
Name: Jan Olaf Willums
Title: CEO

Address:

INVICTUM AS

By: /s/ Trond Holland
Name: Trond Holland
Title: CEO

Address:

BAKELITTFABRIKKEN HOLDING AS

By: /s/ Jan Otto Ringdal
Name: Jan Otto Ringdal
Title: Chairman

Address:

HIBAS HOLDING AS

By: /s/ Erik Ingeberg
Name: Erik Ingeberg
Title: Chairman

Address:

KIRKEVEIEN 98 I AS

By: /s/ Jan Otto Ringdal
Name: Jan Otto Ringdal
Title: Chairman

Address:

FIDELITY MT. VERNON STREET TRUST: FIDELITY SERIES GROWTH COMPANY FUND

By: /s/ Jeffrey Christiann
Name: Jeffrey Christian
Title: Authorized Signatory

FIDELITY GROWTH COMPANY COMMINGLED POOL

By: Fidelity Management & Trust Co.

By: /s/ Jeffrey Christiann
Name: Jeffrey Christian
Title: Authorized Signatory

FIDELITY MT. VERNON STREET TRUST: FIDELITY GROWTH COMPANY FUND

By: /s/ Jeffrey Christiann
Name: Jeffrey Christian
Title: Authorized Signatory

FIDELITY OTC COMMINGLED POOL

By: Fidelity Management & Trust Co.

By: /s/ Jeffrey Christiann
Name: Jeffrey Christian
Title: Authorized Signatory

FIDELITY SECURITIES FUND: FIDELITY OTC PORTFOLIO

By: /s/ Jeffrey Christiann
Name: Jeffrey Christian
Title: Authorized Signatory

SCHEDULE A

NOTICES

OPTINOSE, INC.
1020 Stony Hill Road, Ste 300
Yardley, PA 19067
Facsimile: +1-267-395-2119
Attention: Chief Executive Officer

with a copy to (which shall not constitute notice):

Hogan Lovells US LLP
555 Thirteenth Street, NW
Washington DC 20004
Facsimile: +1 202 637 5910
Attention: Kevin C. Clayton, Esq.

and

Aabø Evenson & Co. Advocatfirma AS
P.O. Box 1789 Vika
Fridtjof Nanses plass 2
N-01220 Oslo
Norway
Facsimile: + 47 2415 9001
Attention: Nils Olav Årseth

Fidelity Investors

Fidelity Mt. Vernon Street Trust: Fidelity Series Growth Company Fund
c/o State Street Bank & Trust
PO Box 5756
Boston, Massachusetts 02206
Attn: WAVELENGTH + CO Fidelity Mt. Vernon Street Trust: Fidelity Series Growth Company Fund
Email: SSBCORPACTIONS@StateStreet.com
Fax number: 617-988-9110

Fidelity Growth Company Commingled Pool
c/o Brown Brothers Harriman & Co.
Harborside Financial Center
1150 Plaza Five
Jersey City NJ 07311
Attn: Michael Lerman 15th Floor
Corporate Actions
Email: michael.lerman@bbh.com
Fax number: 617 772-2418

Fidelity Mt. Vernon Street Trust: Fidelity Growth Company Fund
BNY Mellon
Attn: Stacey Wolfe
525 William Penn Place Rm 0400
Pittsburgh, PA 15259
Email: FidelityCorporateEvents@bnymellon.com
Fax number: 412-236-1012

Fidelity OTC Commingled Pool
c/o Brown Brothers Harriman & Co.
Harborside Financial Center
1150 Plaza Five
Jersey City NJ 07311
Attn: Michael Lerman 15th Floor
Corporate Actions
Email: michael.lerman@bbh.com
Fax number: 617 772-2418

Fidelity Securities Fund: Fidelity OTC Porfolio
c/o The Northern Trust Company
Attn: Trade Securities Processing, C-1N
801 South Canal Street
Chicago, IL 60607
Fidelity Securities Fund: Fidelity OTC Portfolio
Reference Account # F68304
Email: NTINQUIRY@NTRS.COM
Fax number: 312-557-5417

In each case with a copy (which shall not constitute notice) to:

Ropes & Gray LLP
Prudential Tower
800 Boylston Street
Boston, MA 02199
Facsimile: 617-235-0375
Attention: Joel F. Freedman

TKWD VENTURES LLC
c/o WFD Ventures LLC

1500 Broadway 29th Floor
New York, NY 10036
Facsimile: +1 212 767 7575
Attention: William F. Doyle

AVISTA CAPITAL PARTNERS
65 E. 55th Street, 18th Floor
New York, NY 10022
Facsimile: + 1 212 593-6959
Attention: David Burgstahler and Ben Silbert

with a copy to (which shall not constitute notice):

Ropes & Gray LLP
Prudential Tower
800 Boylston Street
Boston, MA 02199
Attention: David Blittner, Esq.

ENTREPRENEURS' FUND GENERAL PARTNER LIMITED
2nd Floor
Windward House
La Route de la Liberation
St Helier, Jersey
The Channel Islands
Fax: +44 1534 754 510

with a copy to (which shall not constitute notice):

Entrepreneurs' Fund Legal Counsel
4th Floor, Eagle House
108-110 Jermyn Street
London SW1Y 6EE
United Kingdom

OPTINOSE, INC.

SECOND AMENDED AND RESTATED SHAREHOLDERS' AGREEMENT

Dated as of March 24, 2017

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SECOND AMENDED AND RESTATED SHAREHOLDERS' AGREEMENT

THIS SECOND AMENDED AND RESTATED SHAREHOLDERS' AGREEMENT (the "**Agreement**"), dated as of March 24, 2017, by and among the following parties (each, a "**Party**" and collectively, the "**Parties**"):

(1) OPTINOSE, INC., a Delaware corporation (the "**Company**");

(2) AVISTA CAPITAL PARTNERS II, LP, a Delaware limited partnership, AVISTA CAPITAL PARTNERS (OFFSHORE) II, LP, a Bermuda limited partnership and AVISTA CAPITAL PARTNERS (OFFSHORE) II-A, LP, a Bermuda limited partnership (hereinafter collectively, the "**Avista Investors**");

(3) Fidelity Mt. Vernon Street Trust: Fidelity Series Growth Company Fund, Fidelity Growth Company Commingled Pool, Fidelity Mt. Vernon Street Trust: Fidelity Growth Company Fund, Fidelity OTC Commingled Pool, and Fidelity Securities Fund: Fidelity OTC Portfolio (hereinafter collectively, the "**Fidelity Investors**");

(4) Each of the investors listed on Exhibit A hereto, as such schedule may be updated from time to time pursuant to the provisions hereof (hereinafter collectively, the "**Other Investors**" and together with the Avista Investors and Fidelity Investors, the "**Investors**");

(5) Each of the existing shareholders of the Company listed on Exhibit B hereto, as such schedule may be updated from time to time pursuant to the provisions hereof (the "**Existing Shareholders**"); and

(6) The employees or consultants of the Company or its Subsidiary listed on Exhibit C hereto, as such schedule may be updated from time to time pursuant to the provisions hereof (each, a "**Management Shareholder**" and, collectively, the "**Management Shareholders**").

The Investors, the Existing Shareholders, the Management Shareholders and the parties who from time to time execute and deliver a Joinder Agreement, are hereinafter referred to each as a "**Shareholder**" and, collectively, as the "**Shareholders**".

The current shareholdings as of the date of this Agreement are set forth on Exhibit D hereto.

RECITALS

(A) WHEREAS, the Company and certain of the Shareholders entered into that certain Shareholders' Agreement, dated June 7, 2010, as amended by

that certain Amendment No. 1 to the Shareholders' Agreement, dated November 18, 2012;

(B) WHEREAS, the Company and certain of the Shareholders (the "**Prior Holders**") entered into that certain Amended and Restated Shareholders' Agreement, dated July 22, 2014, by and among the Company and such Prior Holders (the **"Prior Agreement**");

(C) WHEREAS, the Company and the Investors are entering into a Series D Subscription Agreement, dated the date hereof and as amended from time to time (the "**Subscription Agreement**") pursuant to which the Company shall issue to the Investors Series D Shares (as defined herein);

(D) WHEREAS, on September 30, 2015 the Company entered into that certain $30,000,000 Senior Secured Convertible Note Purchase Agreement by and among the Company, the Guarantors (as defined therein), the Purchasers (as defined therein) and the Purchaser Representative (as defined therein) (the "**Note Purchase Agreement**");

(E) WHEREAS, pursuant to the terms of that certain Note Conversion Agreement (the "**Note Conversion Agreement**"), dated as of the date hereof, by and among the Note Parties and the Majority Purchasers (each as defined in the Note Conversion Agreement), and simultaneously with the Initial Closing of the Subscription Agreement, the Notes (as defined in the Note Purchase Agreement) shall be converted into Series C-2 Shares (as defined herein);

(F) WHEREAS, the initial closing and the subsequent closing(s) of the transactions contemplated by the Subscription Agreement are subject to certain conditions, including the conditions that the Company and the Shareholders shall enter into this Agreement, amending and restating the Prior Agreement in its entirety; and

(G) WHEREAS, the Company and certain of the Prior Holders, holding a sufficient number of Shares to amend the Prior Agreement pursuant to its terms desire to amend and restate, in its entirety, the Prior Agreement, and enter into this Agreement for the purpose of setting forth certain rights and obligations of the Shareholders.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained in this Agreement, the Parties hereby amend and restate the Prior Agreement and further agree as follows:

DEFINITIONS AND REFERENCES

For purposes of this Agreement:

"Affiliate"	means, with respect to any Person, any other Person who, directly or indirectly, controls such first Person or is controlled by said Person or is under common control with said Person, including without limitation any general partner, officer, director or manager of such Person, and any venture capital or private equity fund now or hereafter existing which is controlled by one or more general partners or managing members of, or is managed by the same management company or a management company that, directly or indirectly, is under common control with such management company as, such Person, including having a common general partner, officer, director or manager with such management company, where "control" means power and ability to direct, directly or indirectly, or share equally in or cause the direction of, the management and/or policies of a Person, whether through ownership of voting shares or other equivalent interests of the controlled Person, by contract (including proxy) or otherwise;
"Annual Financial Statements"	shall have the meaning set forth in Section 5.1(d);
"Avista Investors"	shall have the meaning set forth in the Preamble;
"Beneficial Owner"	shall have the meaning set forth in Section 4.11(a)(1);
"Board"	the board of directors of the Company from time to time;
"Business Day"	a day other than a Saturday or Sunday on which banks are open for business in New York, NY;
"Bylaws"	means the Bylaws of the Company as in effect from time to time;
"Call Notice Date"	shall have the meaning set forth in Section 3.5(b);

"Call Period"	means, with respect to the application of the provisions of Section 3.5 to a Terminated Management Shareholder: (i) with respect to Incentive Securities, the period from such Termination Date to the later of (A) the date that is 210 days after the date of purchase of such Incentive Securities in connection with the exercise of Incentive Securities (the "**Exercise Date**"), and (B) the date that is 180 days after the Termination Date;

(ii) with respect to Incentive Securities that are exercised after the Termination Date, the period from the Exercise Date of such Incentive Securities to the date that is 210 days after the Exercise Date; or

(iii) with respect to Purchased Securities, the period that is 90 days after the Termination Date;

"Call Right" shall have the meaning set forth in Section 3.5(a);

"Cause" means, with respect to any Management Shareholder, "Cause" as defined in the employment agreement, if any, by and between the Company or any of its Subsidiaries and such Management Shareholder or, if not so defined:

(i) the Management Shareholder's breach of any fiduciary duty or legal or contractual obligation to the Company or any of its Affiliates, or to the Company's direct or indirect equity holders;

(ii) the Management Shareholder's failure to follow the reasonable instructions of the Board or such Management Shareholder's direct supervisor, which breach, if curable, is not cured within 10 Business Days after notice to such Management Shareholder or, if cured, recurs within 180 days;

(iii) the Management Shareholder's gross negligence, willful misconduct, fraud,

insubordination, acts of dishonesty or conflict of interest relating to the Company or any of its Affiliates; or

(iv) the Management Shareholder's commission of any misdemeanor relating to the affairs of the Company or any of its Affiliates or any felony;

"Charter" means the Third Amended and Restated Certificate of Incorporation of the Company as in effect from time to time;

"CEO Director" shall have the meaning set forth in Section 4.1(b);

"Change of Control" means (a) any transaction or series of related transactions, whether or not the Company is a party thereto, in which, after giving effect to such transaction or transactions, Company Securities representing in excess of fifty percent (50%) of the voting power of the Company are owned, directly or indirectly, through one or more entities, by any "person" or "group" (as such terms are used in Section 13(d) of the Exchange Act) of Persons, other than the Shareholders and their Permitted Transferees, or (b) a sale, lease or other disposition of all or substantially all of the assets of the Company and its Subsidiaries on a consolidated basis (including securities of the Company's directly or indirectly owned Subsidiaries);

"Common Shares" means shares of the Company's common stock, par value $0.001 per share;

"Company" shall have the meaning set forth in the Preamble;

"Company Competitor" means (a) any Person that is reasonably determined by the Board to be a competitor of the Company or any of its Subsidiaries in any material respect and (b) any Affiliate of any such Person specified in clause (a), but excluding any person or entity that is an institutional financial investor. For purposes hereof, without limiting the foregoing, any Person with, or whose Affiliate has, directly or indirectly,

substantial operations in research, developing, manufacturing, marketing, sale or licensing pharmaceutical, medical device or specialty pharmaceutical products or products in the healthcare sector shall be deemed to be a Company Competitor unless otherwise determined by the Board;

"Company Securities" means, without duplication, (i) the Common Shares, (ii) any preferred shares and (iii) any other securities convertible into or exchangeable or exercisable for, or options, warrants or other rights to acquire, Common Shares, preferred shares or any other equity or equity-linked security issued by the Company;

"Confidential Affiliates" shall have the meaning set forth in Section 5.4(a);

"Confidential Information" shall have the meaning set forth in Section 5.4(a);

"Cost" means, (a) with respect to any Purchased Securities, the amount paid by such Management Shareholder on a per Share basis and (b) with respect to (i) any Incentive Securities issued on exercise of an option, the exercise price of that option, or (ii) with respect to any other Incentive Security, (A) if such Incentive Security was initially purchased from the Company by such Management Shareholder, the price paid by such Management Shareholder to purchase such Incentive Security, or (B) if such Incentive Security was granted to such Management Shareholder

by the Company, the amount of any taxes paid by the Management Shareholder if such Management Shareholder made an election under Section 83(b) of the Internal Revenue Code of 1986, as amended, to have such Incentive Security taxed at the time such Management Shareholder received the Common Shares in connection with such grant or of any taxes paid by the Management Shareholder upon the vesting of such Incentive Security;

"Determination Time" shall have the meaning set forth in Section 1.1(f);

"Director" means any of the Founder Director, the CEO Director, the Series A Director, the Series B Director, the Series C Directors, and the Series C-1 Directors;

"Disability" means, with respect to any Management Shareholder, "Disability" as defined in the employment agreement, if any, by and between the Company or any of its Subsidiaries and such Management Shareholder or, if not so defined, any physical or mental illness, injury or infirmity which prevents and/or is reasonably likely to prevent the Management Shareholder from performing the Management Shareholder's essential job functions for a period of (i) 90 consecutive calendar days or (ii) an aggregate of 120 calendar days out of any consecutive 12 month period;

"Disqualification Event" shall have the meaning set forth in Section 4.11(a)(1);

"DGCL" shall mean the General Corporation Law of the State of Delaware, as amended;

"Drag-Along Notice" shall have the meaning set forth in Section 3.2(f);

"Drag-Along Notice Period" shall have the meaning set forth in Section 3.2(g);

"Drag-Along Right" shall have the meaning set forth in Section 3.2(a);

"Drag-Along Sale" shall have the meaning set forth in Section 3.2(a);

"Drag-Along Seller" shall have the meaning set forth in Section 3.2(a);

"Entrepreneurs' Fund" means Entrepreneurs' Fund General Partner Limited, a Jersey (Channel Islands) entity;

"Estate" means and includes the executors or administrators of a deceased Shareholder, and any and all Persons who may claim any interest in his property under such deceased Shareholder's will or by virtue of any laws of descent and distribution;

"Exchange Act" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated

thereunder;

"Exchange Agreement" shall have the meaning set forth in the Recitals;

"Exercise Date" shall have the meaning set forth in the definition of "Call Period";

"Existing Shareholders" shall have the meaning set forth in the Preamble;

"Fair Market Value" means with respect to the Purchased Securities and the Incentive Securities as of any date of determination, (i) in the event that the Common Shares are listed on an established U.S. exchange or through The NASDAQ Global Market or any established over-the-counter trading system, the average of the closing prices of the Common Shares on such exchange if listed or, if not so listed, the average bid and asked price of the Common Shares reported on The NASDAQ Global Market or any established over-the-counter trading system on which prices for the Common Shares are quoted, in each case, for a period of 20 trading days prior to such date of determination, or (ii) if the Common Shares are not publicly traded, a good faith determination by the Board through a reasonable application of a reasonable valuation method. Such determination shall be conclusive and binding on all persons;

"Fidelity Investors" shall have the meaning set forth in the Preamble;

"Final Offer Notice" shall have the meaning set forth in Section 2.7;

"Final Offer Period" shall have the meaning set forth in Section 2.7;

"Final Round Offerees" shall have the meaning set forth in Section 2.7;

"First Offer Notice" shall have the meaning set forth in Section 2.4;

"First Offer Period" shall have the meaning set forth in Section 2.5;

"First Purchase Notice" shall have the meaning set forth in Section 2.5;

"First Round Offerees" shall have the meaning set forth in Section 2.5;

"FMV Calculation Date" means, with respect to the application of the provisions of Section 3.5 to a Terminated Management Shareholder:

(i) with respect to Incentive Securities that were purchased from the Company on an Exercise Date more than six months before the Termination Date, the Termination Date with respect to such Management Shareholder; or

(ii) with respect to Incentive Securities that were purchased on an Exercise Date either less than six months before the Termination Date or after the Termination Date, the Call Notice Date with respect to such Termination Securities;

"Founder Director" shall have the meaning set forth in Section 4.1(a);

"Founder" means Ikos;

"Fund Associates" shall have the meaning set forth in the definition of "Permitted Transferees";

"Fund Affiliates" shall have the meaning set forth in the definition of "Permitted Transferees";

"Fund Partner" shall have the meaning set forth in the definition of "Permitted Transferees";

"GAAP" means United States generally accepted accounting principles set forth in the opinions and pronouncements of the Accounting Principles Board of the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board or in such other statements by such other entity as have been approved by a significant segment of the accounting profession that are in effect from time to time;

"Good Reason" means, with respect to any Management Shareholder, "Good Reason" as defined in the employment agreement, if any, by and between the Company or any of its Subsidiaries and such Management Shareholder or, if not so defined, (i)

the failure of the Company to pay or cause to be paid grantee's base salary or annual bonus, when due, (ii) such grantee is required to permanently relocate to a Company office, which will result in grantee's commute being more than 40 additional miles from the commute from grantee's home to the Company's current office location, each as of the date hereof or (iii) a material decrease in the grantee's base salary; *provided*, that such event shall constitute Good Reason only if the Company or its Subsidiary, as applicable, fails to cure such event within 30 days of receipt from Management Shareholder of written notice of the event which such Management Shareholder believes constitutes Good Reason; *provided*, *further*, that "Good Reason" shall cease to exist for an event on the thirtieth (30^{th}) day following the later of its occurrence or such person's knowledge thereof, unless such person has given the Company or its Subsidiary, as applicable, written notice thereof prior to such date;

"Governmental Authority" means any federal, state, local or foreign governmental authority, department, commission, board, bureau, agency, court, instrumentality or judicial or regulatory body or entity;

"Ikos" means IKOS Invest AS, a Norwegian private limited company with registration number 988 736 740, and IKOS Subsidiary AS, a Norwegian private limited company with registration number 918 529 136;

"Incentive Plan" means the Company's 2010 Equity Incentive Plan, as the same may be amended, modified or supplemented, and any other equity incentive plan adopted by the Board from time to time;

"Incentive Securities" means Company Securities purchased or acquired by, or issued to, a Management Shareholder or its Permitted Transferees pursuant to the exercise of options (including any options for common shares) or other rights to acquire Common Shares, restricted stock or any other equity or equity-linked security issued by the Company, pursuant to the Incentive

Plan;

"Initial Closing" shall have the meaning set forth in the Subscription Agreement;

"Initial Public Offering" means a successfully completed firm commitment underwritten initial public offering of Common Shares pursuant to an effective registration statement under the Securities Act for the account of the Company;

"Investors" shall have the meaning set forth in the Preamble;

"Joinder Agreement" means the agreement substantially in the form of Exhibit E hereto;

"Liquidity Event" shall have the meaning set forth in the Charter;

"Lock-Up Period" shall have the meaning set forth in Section 1.1(d);

"Management Shareholder" shall have the meaning set forth in the Preamble;

"Note Purchase Agreement" shall have the meaning set forth in the Recitals;

"Offered Shares" shall have the meaning set forth in Section 2.4;

"Other Investors" shall have the meaning set forth in the Preamble;

"Other Shareholders" shall have the meaning set forth in Section 3.2(a);

"Participating Seller" shall have the meaning set forth in Section 3.1(b);

"Permitted Transferee" means: (a) in respect of each of the Avista Investors, TKWD, Entrepreneurs' Fund and Fidelity Investors, (i) any other Avista Investor (with respect to each Avista Investor), (ii) any other Fidelity Investors (with respect to each Fidelity Investor), (iii) any general or limited partner of such entity (a "**Fund Partner**"), and any corporation, partnership or other entity that is an Affiliate of any Fund Partner (collectively, "**Fund Affiliates**"), (iv) any managing director, general partner, director, limited partner, officer or employee of any such entity or any Fund Affiliate, or any spouse, lineal descendant, sibling, parent, heir, executor, administrator, testamentary

trustee, legatee or beneficiary of any of the foregoing persons described in this clause (iv) (collectively, "**Fund Associates**"), (v) any trust the beneficiaries of which, or any corporation, limited liability company or partnership the shareholders, members or general or limited partners of which, include only such entity, Fund Affiliates, Fund Associates, their spouses or their lineal descendants and (v) a voting trustee for such entity, one or more Fund Affiliates or Fund Associates; (b) in respect of each Shareholder (other than the Avista Investors, TKWD, Entrepreneurs' Fund and Fidelity Investors) that is an entity, any such Shareholder's Affiliates so long as they remain Affiliates of such Shareholder; and (c) in respect of each Shareholder who is a natural person, (i) such Shareholder's Estate and heirs, (ii) such other Persons who may be so designated by the Board, (iii) any estate planning trust of a Shareholder provided that the grantor Shareholder is trustee of such trust, or (iv) such other personal estate or tax planning vehicle or device of which the grantor Shareholder is a controlling Person with respect to the voting and the disposition of the Company Securities held thereby;

"Person" includes an individual and any association, business, company, concern, enterprise, firm, partnership, joint venture, trust, undertaking or other similar entity, including a Governmental Authority;

"Proposed Transferee" shall have the meaning set forth in Section 3.2(a);

"Purchased Securities" means any Company Securities purchased by a Management Shareholder from the Company pursuant to any subscription or stock purchase agreement, but excluding any Incentive Securities and any Common Shares purchased by a Management Shareholder after the Initial Public Offering in any open market transaction or otherwise from a Third Party;

"**Relative Ownership Percentage**" means with respect to a Shareholder, a fraction (expressed as a percentage), (A) the numerator of which is the aggregate ownership of Common

Shares owned by such Shareholder immediately following the Determination Time and (B) the denominator of which is the aggregate ownership of Common Shares owned by such Shareholder immediately following the Initial Public Offering; provided that with respect to each Management Shareholder, the number of Common Shares to be included in said numerator and denominator shall

	include any Common Shares that may be acquired by such Management Shareholder by exercising any vested options held by such Management Shareholder;
"Second Offer Notice"	shall have the meaning set forth in Section 2.6;
"Second Offer Period"	shall have the meaning set forth in Section 2.6;
"Second Purchase Notice"	shall have the meaning set forth in Section 2.6;
"Second Round Offerees"	shall have the meaning set forth in Section 2.6;
"Securities Act"	means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder;
"Selling Series C/D Shareholder"	shall have the meaning set forth in Section 2.1;
"Selling Shareholder"	shall have the meaning set forth in Section 2.4;
"Series A Director"	shall have meaning in Section 4.1(c);
"Series B Director"	shall have meaning in Section 4.1(d);
"Series C Director"	shall have meaning in Section 4.1(e);
"Series C-1 Director"	shall have meaning in Section 4.1(f);
"Series C/D Offer Notice"	shall have meaning in Section 2.1;
"Series C/D Offer Period"	shall have meaning in Section 2.2;
"Series C/D Offered Shares"	shall have the meaning in Section 2.1;
"Series C/D Offerees"	shall have meaning in Section 2.2;

"Series C/D Purchase Notice"	shall have meaning in Section 2.2;
"Series A Shares"	means shares of the Company's series A convertible preferred stock, par value $0.001 per share;
"Series B Shares"	means shares of the Company's series B-1 convertible preferred stock, par value $0.001 per share, and series B-2 convertible preferred stock, par value $0.001 per share;
"Series C Shares"	means shares of the Company's series C convertible preferred stock, par value $0.001 per share;
"Series C-1 Shares"	means shares of the Company's series C-1 convertible preferred stock, par value $0.001 per share;
"Series C-2 Shares"	means shares of the Company's series C-2 convertible preferred stock, par value $0.001 per share;
"Series D Shares"	means shares of the Company's series D convertible preferred stock, par value $0.001 per share;
"Shares"	shares in the capital of the Company from time to time (of whatever class) and include any and all shares and shall include any such shares now owned or subsequently acquired by a Shareholder, however acquired, including, without limitation, share splits and share dividends;
"Shareholders"	shall have the meaning set forth in the Preamble;
"Subscription Agreement"	shall have the meaning set forth in the Recitals;
"Subsidiary"	means, with respect to any specified Person, any other Person in which such specified Person, directly or indirectly through one or more Affiliates or otherwise, beneficially owns at least fifty percent (50%) of either the ownership interest (determined by equity or economic interests) in, or the voting control of, such other Person;
"Tag-Along Notice"	shall have the meaning set forth in Section 3.1(a);

"Tag-Along Notice Period"	shall have the meaning set forth in Section 3.1(b);
"Tag-Along Offer"	shall have the meaning set forth in Section 3.1(a);

"Tag-Along Offerees"	shall have the meaning set forth in Section 3.1(a);
"Tag-Along Response Notice"	shall have the meaning set forth in Section 3.1(b);
"Tag-Along Sale"	shall have the meaning set forth in Section 3.1(a);
"Tag-Along Seller"	shall have the meaning set forth in Section 3.1(a);
"**Termination Date**"	shall have the meaning set forth in Section 3.5(a);
"**Termination Event**"	shall have the meaning set forth in Section 3.5(a);
"**Terminated Shareholder**"	shall have the meaning set forth in Section 3.5(a);
"**Termination Price**"	shall have the meaning set forth in Section 3.5(d);
"**Termination Securities**"	shall have the meaning set forth in Section 3.5(a);
"**Third Party**"	means a prospective purchaser (other than a Permitted Transferee of the prospective selling Shareholder) of Company Securities in a bona fide arm's length transaction;
"TKWD"	means TKWD Ventures LLC, a Delaware limited liability company with its principal address c/o WFD Ventures LLC, 1500 Broadway, 29th Floor, New York, NY 10036; and
"Transfer"	means, with respect to any Company Securities, (i) when used as a verb, to sell, assign, dispose of, exchange, pledge, encumber, hypothecate or otherwise transfer such Company Securities or any participation or interest therein, whether directly or indirectly, or agree or commit to do any of the foregoing, and (ii) when used as a noun, a direct or indirect sale, assignment, disposition, exchange, pledge, encumbrance, hypothecation, or other transfer of such Company Securities or any participation or interest therein or any agreement or

commitment to do any of the foregoing.

Other Definitional and Interpretive Matters. Unless otherwise expressly provided, for purposes of this Agreement, the following rules of interpretation shall apply:

Calculation of Time. When calculating the period before which, within which or after which any act is to be done or step taken pursuant to this Agreement, the date that is the reference date in calculating such period shall be excluded. If the last day of such period is a non-Business Day, the period in question shall end on the next succeeding Business Day.

Dollars. Any reference in this Agreement to "$" means U.S. dollars.

Annexes/Exhibits/Schedules. The Annexes, Exhibits and Schedules to this Agreement are hereby incorporated and made a part hereof and are an integral part of this Agreement. Any capitalized terms used in any Annex, Exhibit or Schedule but not otherwise defined therein shall be defined as set forth in this Agreement.

Gender and Number. Any reference in this Agreement to gender shall include all genders, and words imparting the singular number only shall include the plural and vice versa.

Headings. The provision of a Table of Contents, the division of this Agreement into Sections and other subdivisions and the insertion of headings are for convenience of reference only and shall not affect or be utilized in construing or interpreting this Agreement. All references in this Agreement to any "Article" or "Section" are to the corresponding Article or Section of this Agreement unless otherwise specified.

Herein. The words such as "*herein*," "*hereinafter*," "*hereof*," and "*hereunder*" refer to this Agreement as a whole and not merely to a subdivision in which such words appear unless the context otherwise requires.

1. GENERAL RESTRICTIONS ON TRANSFER; PERMITTED TRANSFEREES

1.1 **General Restrictions on Transfer**.

(a) Each Shareholder understands and agrees that the Company Securities held by it on the date hereof have not been registered under the Securities Act and are restricted securities under the Securities Act. No Shareholder shall Transfer any Company Securities (or solicit any offers in respect of any Transfer of any Company Securities), except in compliance with the Securities Act, any other applicable securities or "blue sky" laws and any restrictions on Transfer contained in this Agreement or any other provisions set forth in any other agreements or instruments pursuant to which such Company Securities were issued. No Shareholder shall Transfer any Company Securities

if such Transfer would cause any class of Company Securities to be required to become subject to registration under the Exchange Act.

(b) Each Shareholder hereby agrees that such Shareholder shall not Transfer any of its Company Securities at any time other than pursuant to a Transfer in accordance with Section 1, Section 2 and Section 3. Any Transfer of Company Securities, other than according to the terms of this Agreement, shall be void and transfer no right, title or interest in or to any of such Company Securities to the purported transferee. The parties hereto acknowledge that the transfer restrictions contained herein are reasonable and in the best interests of the Company.

(c) Except in connection with a Drag-Along Sale or a transaction that would constitute a Liquidity Event, no Shareholder shall Transfer any Company Securities to a Company Competitor.

(d) Until the third anniversary of the date of this Agreement (the "**Lock-Up Period**"), each Existing Shareholder hereby agrees that such Existing Shareholder shall not Transfer any of its Company Securities (other than any Series C Shares, Series C-1 Shares, Series C-2 Shares and Series D Shares, except Series C Shares, Series C-1 Shares, Series C-2 Shares and Series D Shares held by Management Shareholders) at any time other than Transfers (i) to the Investors or Permitted Transferees, (ii) as a Participating Seller in a Tag-Along Sale, (iii) in a Drag-Along Sale, (iv) a transaction that would constitute a Liquidity Event. Following the Lock-Up Period, a Shareholder may not transfer its Company Securities, except in accordance and compliance with this Section 1, Section 2 and Section 3.

(e) Notwithstanding anything to the contrary herein (including in Section 1.1(d) and Section 2), Management Shareholders may only Transfer their Company Securities (i) to Permitted Transferees, (ii) as a Participating Seller in a Tag-Along Sale, (iii) in Drag-Along Sale, (iv) in a transaction that would constitute a Liquidity Event or (v) as provided in Section 1.1(f).

(f) Following the Initial Public Offering, subject to Section 1.1(a) and applicable laws (including applicable securities laws), each Management Shareholder may Transfer Common Shares, but only to the extent that such Transfer would not result in the Relative Ownership Percentage of the Common Shares of such Management Shareholder immediately following the effective time of such Transfer (the "**Determination Time**") being less than the Relative Ownership Percentage of the Common Shares owned by the Avista Investors immediately following the Determination Time.

(g) Each Existing Shareholder agrees that, during the period of ninety (90) days (or, in the case of an underwritten offering, such lesser period as the managing underwriters may permit, it being understood that the Company shall request for the

benefit of the Existing Shareholders that such managing underwriter act in good faith in determining whether to permit a shorter period) following the effective date of a registration statement of the Company filed under the Securities Act in connection with an underwritten offering (and, in the case of the initial public offering of the Company's securities, one hundred eighty (180) days), which periods may be extended upon the request of the managing underwriter, to the extent required by any rules of the Financial Industry Regulatory Authority, Inc. or any successor organization thereto, for an additional period of up to fifteen (15) days if the Company issues or proposes to issue an earnings or other public release within fifteen (15) days of the expiration of such lockup period (or, in the case of an underwritten offering, such lesser period as the managing underwriters may permit, it being understood that the Company shall request for the benefit of the Existing Shareholders that such managing underwriter act in good faith in determining whether to permit a shorter period), it shall not, if requested by such underwriter, sell or otherwise transfer or dispose of (other than to donees, Affiliates, partners or members who agree to be similarly bound) any Common Shares or any securities of the Company convertible into Common Shares held by it except Registrable Securities (as defined in that certain Second Amended and Restated Registration Rights Agreement dated as of March 24, 2017) included in such registration. Each Shareholder further agrees to execute such agreements as may be reasonably requested by the underwriters in connection with such registration that are consistent with this Section 1.1(g) or that are necessary to give further effect thereto.

1.2 **Permitted Transferees**. Subject to Section 1.1, Transfers of Company Securities by any Shareholder to a Permitted Transferee shall be permitted and shall not be subject to the transfer restrictions in Section 2 (Right of First Refusal) or Section 3.1 (Tag-Along Rights), to the extent applicable, so long as such Permitted Transferee signs the Joinder Agreement or similar agreement whereby such transferee shall be subject to the terms and conditions of this Shareholders Agreement. Each Shareholder must give prior written notice to the Company of any proposed Transfer to such Permitted Transferee, including the identity of such Permitted Transferee and such other documentation reasonably requested by the Company to ensure compliance with the terms of this Agreement.

1.3 **Legend**. At all times prior to an Initial Public Offering, in addition to any other legend that may be required, each certificate for Company Securities issued to any Shareholder shall bear a legend in substantially the following form with such changes as the Company determines advisable or necessary to qualify for notice, registration and other exemptions under "blue sky" laws:

> THESE SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR THE SECURITIES LAWS OF ANY STATE AND MAY NOT BE TRANSFERRED WITHOUT REGISTRATION

> UNDER THE SECURITIES ACT OR STATE SECURITIES LAWS OR AN OPINION OF COUNSEL, SATISFACTORY TO THE COMPANY, THAT SUCH REGISTRATION IS NOT REQUIRED.
>
> THE SECURITIES REPRESENTED BY THIS CERTIFICATE ARE ALSO SUBJECT TO THE TERMS AND CONDITIONS OF A SHAREHOLDERS AGREEMENT BY AND AMONG THE COMPANY AND THE HOLDERS SPECIFIED THEREIN, A COPY OF WHICH AGREEMENT IS ON FILE AT THE PRINCIPAL OFFICE OF THE COMPANY. THE SALE, TRANSFER OR OTHER DISPOSITION OF THE SECURITIES IS SUBJECT TO THE TERMS OF SUCH AGREEMENT AND THE SECURITIES ARE TRANSFERABLE ONLY UPON PROOF OF COMPLIANCE THEREWITH.

2. RIGHT OF FIRST REFUSAL

2.1 **Selling Series C/D Shareholder and Notice**. Subject to Section 1.1, if any holder of Series C Shares, Series C-1 Shares, Series C-2 Shares or Series D Shares desires to Transfer any of his Series C Shares, Series C-1 Shares, Series C-2 Shares or Series D Shares or any interest in such Shares to a

Third Party, in any transaction other than pursuant to Section 1.2 or Section 3.2 of this Agreement, such holder (the "**Selling Series C/D Shareholder**"), shall first deliver written notice of his desire to sell such Series C Shares, Series C-1 Shares, Series C-2 Shares and/or such Series D Shares (the "**Series C/D Offer Notice**"), to the Company and each of the holders of Series C Shares, Series C-1 Shares, Series C-2 Shares or Series D Shares in the manner prescribed in Section 8.9 of this Agreement. Each Series C/D Offer Notice must specify: (i) the name and address of the Third Party to which the Selling Series C/D Shareholder proposes to sell or otherwise dispose of the Shares or an interest in the Shares, (ii) the number of Series C Shares, Series C-1 Shares, Series C-2 Shares or Series D Shares (the "**Series C/D Offered Shares**") the Selling Shareholder proposes to sell or otherwise dispose of, (iii) the consideration per Share to be delivered to the Selling Series C/D Shareholder for the proposed Transfer, (iv) the proposed date of the Transfer, and (v) all agreements related to and other material terms and conditions of the proposed transaction.

2.2 **Series C/D Offer Period.** Each holder of Series C Shares, Series C-1 Shares, Series C-2 Shares and/or Series D Shares (the "**Series C/D Offerees**") shall have the right, exercisable for a period of ten (10) Business Days from the date of delivery of the Series C/D Offer Notice (the "**Series C/D Offer Period**") to purchase, pro rata based on the number of Series C Shares, Series C-1 Shares, Series C-2 Shares and Series D Shares then owned by such Series C/D Offerees of all of the outstanding Series C Shares,

Series C-1 Shares, Series C-2 Shares and Series D Shares, the Series C/D Offered Shares for the consideration per share and on the terms and conditions set forth in the applicable Series C/D Offer Notice, provided, that the Avista Investors and Fidelity Investors shall each have the pro rata right (based on their respective ownership on an as-converted basis of Shares) to purchase any Series C/D Offered Shares that an Other Investor would be entitled to purchase but elects not to purchase pursuant to this Section 2.2 (and the Avista Investors and Fidelity Investors shall each have an oversubscription right for any such shares not purchased by the other party). Such right shall be exercised by delivery by such Series C/D Offerees of an irrevocable notice, prior to the expiration of the Series C/D Offer Period to the Company, with a copy to the Selling Series C/D Shareholder (the "**Series C/D Purchase Notice**"). The failure of any Series C/D Offeree to deliver a Series C/D Purchase Notice by the end of the Series C/D Offer Period shall be deemed to be a waiver solely with respect to its right to participate in the purchase of the Series C/D Offered Shares then being sold pursuant to this Section 2.2 (and not with respect to any subsequent sales).

2.3 **Completion of First Refusal Sale of Series C/D Shares**.

(a) Subject to the requirement in Section 2.3(b) that all the Series C/D Offered Shares have been elected to be purchased, immediately after the final determination of the number of the Series C/D Offered Shares to be purchased by each of the holders of Series C Shares, Series C-1 Shares, Series C-2 Shares and Series D Shares pursuant to Section 2.1 through 2.2, the Company shall immediately notify all of such purchasing Shareholders of such determination. The closing of the purchase of the Series C/D Offered Shares shall take place at the offices of the Company no later than thirty (30) days after the date of such notice by the Company (provided, that, if any such Transfer is subject to regulatory approval, such 30-day period shall be extended until the expiration of five Business Days after all such approvals have been received, but in no event later than 120 days following the expiration of the Series C/D Offer Period), or at such other time and place as the parties to the transaction may agree. At such closing, the Selling Series C/D Shareholder shall deliver the certificate and other applicable instruments representing the Series C/D Offered Shares, and wire transfer instructions for payment of the consideration therefor, along with one or more assignment agreements transferring the Series C/D Offered Shares to the relevant purchasing Shareholders. In connection with the Transfer of the Series C/D Offered Shares, the Selling Series C/D Shareholder shall only be required to represent and warrant that the Series C/D Offered Shares to be transferred shall be free and clear of any liens, claims or encumbrances (other than restrictions imposed by this Agreement and pursuant to applicable federal, state and foreign securities laws), that it is the record and beneficial owner of such Series C/D Offered Shares that it has all necessary power and authorization to consummate the Transfer, and that it has obtained or made all necessary consents, approvals, filings and notices from governmental authorities or third parties to consummate the Transfer. The holders of Shareholders purchasing the Series C/D Offered Shares shall deliver at such

closing by certified or official bank check or by wire transfer of immediately available funds, payment in full for such Series C/D Offered Shares.

(b) If the Shareholders do not, in the aggregate, elect to purchase all of the Series C/D Offered Shares pursuant to Sections 2.1 through 2.2, then the applicable Selling Series C/D Shareholder shall be permitted, subject to the provisions of Section 3.1, for a period of (90) days from the date of the expiration of the Series C/D Offer Period (provided, in each case that, if such Transfer is subject to regulatory approval, such 90-day period shall be extended until the expiration of five Business Days after all such approvals have been received, but in no event later than 120 days following the expiration of the Series C/D Offer Period) to enter into definitive agreements to Transfer all of such Series C/D Offered Shares to the bona fide purchaser referred to in the Series C/D Offer Notice at a price not less than the said share price and on the same terms and conditions; provided, that the Selling Series C/D Shareholder shall not Transfer the Series C/D Offered Shares to the bona fide purchaser unless such bona fide purchaser contemporaneously with the sale signs the Joinder Agreement agreeing to be bound by the terms of this Agreement. After the expiration of the said ninety (90) days (or such longer period referred to above), no sale shall be made without an offer being again made in respect of the Series C/D Offered Shares not previously disposed of pursuant to the foregoing provisions of Sections 2.1 through 2.3.

2.4 **Selling Shareholder and Notice**. Subject to Section 1.1, if any Shareholder desires to Transfer any of his Shares (other than any Series C Shares, Series C-1 Shares, Series C-2 Shares or Series D Shares, except Series C Shares, Series C-1 Shares, Series C-2 Shares or Series D Shares held by Management Shareholders), or any interest in such Shares to a Third Party, in any transaction other than pursuant to Section 1.2 or Section 3.2 of this Agreement, such Shareholder (the "**Selling Shareholder**") shall first deliver written notice of his desire to do so (the "**First Offer Notice**") to the Company and each of the holders of Series C Shares, Series C-1 Shares, Series C-2 Shares and Series D Shares in the manner prescribed in Section 8.9 of this Agreement. The First Offer Notice must specify: (i) the name and address of the Third Party to which the Selling Shareholder proposes to sell or otherwise dispose of the Shares or an interest in the Shares, (ii) the number of Shares the Selling Shareholder proposes to sell or otherwise dispose of (the "**Offered Shares**"), (iii) the consideration per Share to be delivered to the Selling Shareholder for the proposed Transfer, (iv) the proposed date of the Transfer, and (v) all agreements related to and other material terms and conditions of the proposed transaction.

2.5 **First Offer Period**. Each holder of Series C Shares, Series C-1 Shares, Series C-2 Shares and Series D Shares (the "**First Round Offerees**") shall have the right, exercisable for a period of ten (10) Business Days from the date of delivery of the First Offer Notice (the "**First Offer Period**"), to purchase, pro rata based on the number of Series C Shares, Series C-1 Shares, Series C-2 Shares and Series D Shares then owned by such First Round Offeree of all of the outstanding Series C Shares, Series C-1 Shares,

Series C-2 Shares and Series D Shares the Offered Shares for the consideration per share and on the terms and conditions set forth in the First Offer Notice, provided, that the Avista Investors and Fidelity Investors shall each have the pro rata right (based on their respective ownership on an as-converted basis of Shares) to purchase any Offered Shares that an Other Investor would be entitled to purchase but elects not to purchase pursuant to this Section 2.5 (and the Avista Investors and Fidelity Investors shall each have an oversubscription right for any such shares not purchased by the other party). Such right shall be exercised by delivery by such First Round Offeree of an irrevocable notice, prior to the expiration of the First Offer Period, to the Company, with a copy to the Selling Shareholder (the "**First Purchase Notice**"). The failure of any First Round Offeree to deliver a First Purchase Notice by the end of the First Offer Period shall be deemed to be a waiver solely with respect to its right to participate in the purchase of the Offered Shares then being sold pursuant to this Section 2.5 (and not with respect to any subsequent sales).

2.6 **Second Offer Period**. In the event that not all of the Offered Shares have been elected to be purchased by the First Round Offerees pursuant to Section 2.5, the Company shall deliver written notice (the "**Second Offer Notice**") of this to all holders of Series A Shares and Series B Shares (the "**Second Round Offerees**") (such notice to be given in the manner prescribed in Section 8.9). Each Second Round Offeree shall have the right, exercisable for a period of ten (10) Business Days from the date of delivery of the Second Offer Notice (the "**Second Offer Period**"), to purchase, pro rata based on the total number of Series A Shares and Series B Shares owned by such Second Round Offeree of the outstanding Series A Shares and Series B Shares owned by all of the Second Round Offerees, the balance of such Offered Shares on the terms and conditions set forth in the First Offer Notice. Such right shall be exercised by delivery of an irrevocable notice, prior to the expiration of the Second Offer Period, to the Company, with a copy to the Selling Shareholder, specifying the number of Offered Shares that such Second Round Offeree wishes to purchase (the "**Second Purchase Notice**"). The failure of any of the Second Round Offerees to deliver a Second Purchase Notice by the end of the Second Offer Period shall be deemed to be a waiver solely with respect to its right to participate in the purchase of the Offered Shares then being sold pursuant to this Section 2.6 (and not with respect to any subsequent sales).

2.7 **Final Offer Period**. In the event that all Offered Shares have not been elected to be purchased by the First Round Offerees or the Second Round Offerees pursuant to Section 2.5 and Section 2.6 respectively, the Company shall deliver written notice (the "**Final Offer Notice**") of this to the First Round Offerees and Second Round Offerees that irrevocably elected to purchase their full pro rata portion of the Offered Shares pursuant to Section 2.5 and Section 2.6 (the "**Final Round Offerees**") (such notice to be given in the manner prescribed in Section 8.9). For a period of five (5) days after receipt of the Final Offer Notice (the "**Final Offer Period**"), each Final Round Offeree shall have the right, which right may be exercised by delivering written notice (a "**Final Purchase Notice**") to the Company, with a copy to the Selling Shareholder, prior

to the expiration of the Final Offer Period, to irrevocably elect to purchase all, but not less than all, of the remaining Offered Shares. If more than one Final Round Offeree timely delivers a Final Purchase Notice, then each such Final Round Offeree shall be entitled to purchase, pro rata based on the number of Shares owned by such Final Round Offeree of all such outstanding Shares (in each case on an as-converted basis) owned by the Final Round Offerees irrevocably electing to purchase the balance of the Offered Shares, on the terms and conditions set forth in the First Offer Notice. The failure of any Final Round Offeree to irrevocably elect to purchase all but not less than all of the remaining Offered Shares pursuant to this Section 2.7 prior to the expiration of the Final Offer Period shall be deemed to be a waiver solely with respect to its right to participate in the purchase of the Offered Shares pursuant to this Section 2.7.

2.8 **Completion of First Refusal Sale**.

(a) Subject to the requirement in Section 2.8(b) that all the Offered Shares have been elected to be purchased, immediately after the final determination of the number of Offered Shares to be purchased by each of the Shareholders pursuant to Sections 2.4 through 2.7, the Company shall immediately notify all of such purchasing Shareholders of such determination. The closing of the purchase of the Offered Shares shall take place at the offices of the Company no later than thirty (30) days after the date of such notice by the Company (provided, that, if any such Transfer is subject to regulatory approval, such 30-day period shall be extended until the expiration of five Business Days after all such approvals have been received, but in no event later than 120 days following the expiration of the First Offer Period), or at such other time and place as the parties to the transaction may agree. At such closing, the Selling Shareholder shall deliver the certificate and other applicable instruments representing the Offered Shares and wire transfer instructions for payment of the consideration therefor, along with one or more assignment agreements transferring the Offered Shares to the relevant purchasing Shareholders. In connection with the Transfer of the Offered Shares, the Selling Shareholder shall only be required to represent and warrant that the Offered Shares to be transferred shall be free and clear of any liens, claims or encumbrances (other than restrictions imposed by this Agreement and pursuant to applicable federal, state and foreign securities laws), that it is the record and beneficial owner of such Offered Shares, that it has all necessary power and authorization to consummate the Transfer, and that it has obtained or made all necessary consents, approvals, filings and notices from governmental authorities or third parties to consummate the Transfer. The holders of Shareholders purchasing the Offered Shares shall deliver at such closing by certified or official bank check or by wire transfer of immediately available funds, payment in full for such Offered Shares.

(b) If the Shareholders do not, in the aggregate, elect to purchase all of the Offered Shares pursuant to Sections 2.4 through 2.7, then the applicable Selling Shareholder shall be permitted, subject to the provisions of Section 3.1, for a period of (90) days from the date of the First Offer Notice (provided, that, if such Transfer is

subject to regulatory approval, such 90-day period shall be extended until the expiration of five Business Days after all such approvals have been received, but in no event later than 120 days following the expiration of the First Offer Period) to enter into definitive agreements to Transfer all of such the Offered Shares to the bona fide purchaser referred to in the First Offer Notice at a price not less than the said share price and on the same terms and conditions; provided, that the Selling Shareholder shall not Transfer the Offered Shares to the bona fide purchaser unless such bona fide purchaser contemporaneously with the sale signs the Joinder Agreement agreeing to be bound by the terms of this Agreement. After the expiration of the said ninety (90) days (or such

longer period referred to above), no sale shall be made without an offer being again made in respect of the Shares not previously disposed of pursuant to the foregoing provisions of Sections 2.4 through 2.8.

3. TAG-ALONG RIGHTS; DRAG-ALONG RIGHTS; PREEMPTIVE RIGHTS; CALL RIGHTS

3.1 **Tag-Along Rights**.

(a) Subject to Section 1.1, if a Shareholder (the "**Tag-Along Seller**") desires to Transfer (a "**Tag-Along Sale**") all or a part of his Shares (other than Fidelity Investors) to any Third Party in a single transaction or in a series of related transactions and such Offered Shares, as applicable, have been offered to, but not purchased by, the Shareholders in accordance with Section 2, the Tag-Along Seller shall first, by written notice to the Company, which shall provide the other Shareholders (the "**Tag-Along Offerees**") with a copy of such notice ("**Tag-Along Notice**"), offer the Tag-Along Offerees ("**Tag-Along Offer**") the opportunity to participate in such Transfer on an as converted basis in accordance with this Section 3.1 and Section 3.3. The Tag-Along Notice must specify: (i) the name and address of the party to which the Tag-Along Seller proposes to sell or otherwise dispose of the Shares or an interest in the Shares, (ii) the number of Offered Shares the Tag-Along Seller proposes to sell or otherwise dispose of pursuant to this Section 3.1(a), (iii) the consideration per Share to be delivered to the Tag-Along Seller for the proposed Transfer, (iv) the proposed date of the Transfer, and (v) all other material terms and conditions of the proposed transaction.

(b) Upon receipt of the Tag-Along Notice, each Tag-Along Offeree shall have a fifteen (15) Business Day period after receipt of such notice (the "**Tag-Along Notice Period**") in which to elect to sell Shares in the transaction by sending a notice ("**Tag-Along Response Notice**") in writing to the Company (each such electing Tag-Along Offeree, a "**Participating Seller**"). The Company shall promptly, on expiration of the Tag-Along Notice Period, notify the Tag-Along Seller of the aggregate number of Shares the Participating Sellers wish to sell. Each Participating Seller shall have the right to sell an amount of Shares equal to the Shares the Third Party proposes to purchase multiplied by a fraction, the numerator of which shall be the number of Shares held by such Participating Seller, and the denominator of which shall be the aggregate number of

Shares held by the Tag-Along Seller and each Participating Seller, in each case on an as-converted basis. For the purposes of this Section 3.1(b), Shares of a Management Shareholder shall exclude any Incentive Securities underlying any options for Common Shares, whether or not such options are vested, unless such options are exercised prior to the end of the Tag-Along Notice Period (as defined below). The pricing of the Shares to be sold in a Tag-Along Sale shall be as set forth in Section 3.3(a).

(c) The Tag-Along Response Notice shall include wire transfer instructions for payment of the purchase price for the Offered Shares to be sold by the Participating Seller in the Tag-Along Sale. The Participating Sellers shall, upon request, deliver to the Tag-Along Seller, with the Tag-Along Response Notice, the certificate or certificates representing the Shares of such Participating Seller to be included in the Tag-Along Sale, together with a limited power-of-attorney authorizing the Tag-Along Seller to Transfer such Shares on the terms set forth in the Tag-Along Notice. Delivery of the Tag-Along Response Notice with such certificate or certificates and limited power-of-attorney shall constitute an irrevocable acceptance of the Tag-Along Offer by the Participating Sellers. In order to participate in a Tag-Along Sale, subject to Section 3.3(b), the Participating Sellers must agree to enter into and execute substantially identical agreements and documents as the Tag-Along Seller enters into and executes in connection with the Tag-Along Sale.

(d) If, at the end of a 90-day period after the date of receipt of the Tag-Along Notice (provided that if such Tag-Along Sale is subject to regulatory approval, such 90-day period shall be extended until the expiration of five (5) Business Days after all such approvals have been received, but in no event later than 120 days after the date of receipt of the Tag-Along Notice), the Tag-Along Seller has not completed the Transfer of all of the Offered Shares to be sold pursuant to this Section 3.1 on substantially the same terms and conditions set forth in the Tag-Along Notice (but as to price, the terms shall be exactly the same), the Tag-Along Seller shall (i) promptly return to the Participating Sellers the limited power-of-attorney (and all copies thereof) together with all certificates representing the Offered Shares that such Participating Sellers delivered for Transfer pursuant to Section 3.1(c) and any other documents in the possession of the Tag-Along Seller executed by the Participating Sellers in connection with the proposed Tag-Along Sale, and (ii) not conduct any Transfer of such shares of the specified class of Offered Shares without again complying with this Section 3.1.

(e) Concurrently with the consummation of the Tag-Along Sale, the Tag-Along Seller shall (i) notify the Participating Sellers thereof, (ii) remit or cause to be remitted to the Participating Sellers the total consideration to be paid at the closing of the Tag-Along Sale for the Shares of the Participating Sellers Transferred pursuant thereto, with the cash portion of the purchase price paid by wire transfer of immediately available funds in accordance with the wire transfer instructions in the Tag-Along Response Notice, and (iii) promptly after the consummation of such Tag-Along Sale, furnish such

other evidence of the completion and the date of completion of such Transfer and the terms thereof as may be reasonably requested by the Participating Sellers.

(f) If at the termination of the Tag-Along Notice Period, any Tag-Along Offeree has not elected to participate in the Tag-Along Sale, such Tag-Along Offeree shall be deemed to have waived its rights under Section 3.1(a) with respect to, and only with respect to, the Transfer of its Shares pursuant to such Tag-Along Sale.

(g) This Section 3.1 shall not apply to any Transfer of Company Securities (i) to the Investors, (ii) in a Drag-Along Sale, or (iii) that are Series D Shares.

3.2 **Drag-Along Rights**

(a) Subject to the approval rights of the holders of Series C Shares, Series C-1 Shares, Series C-2 Shares and Series D Shares as set forth in the Charter, in the event that holders representing more than fifty percent (50%) of the then issued Shares on an as converted basis (the "**Drag-Along Seller**") wish to Transfer in a bona fide arm's length transaction or series of transactions all of the Shares then owned by the Drag-Along Seller to any Person who is not an Affiliate of any Shareholders (the "**Proposed Transferee**"), the Drag-Along Seller shall have the right (the "**Drag-Along Right**") to require all

of the other Shareholders (the "**Other Shareholders**") to sell to the Proposed Transferee all, and not only part, of the Shares then owned by such Shareholders (such transaction referred to in this Agreement as a "**Drag-Along Sale**") on the same terms and conditions as the Drag-Along Sale, except as provided in Section 3.3(a).

(b) As part of a Drag-Along Sale, the Drag-Along Seller shall also have the right to require that all of the Other Shareholders that hold warrants, options or other Company Securities that are convertible into or exchangeable or exercisable for Shares shall be exercised, exchanged or converted into Shares immediately prior to the consummation of the Drag-Along Sale and the Shares issued upon such exercise, exchange or conversion shall be included in the Drag-Along Sale. Management Shareholders that hold options or warrants the exercise price per share of which is greater than the per share price at which the Shares are to be Transferred in connection with the Drag-Along Sale, if required by the Drag-Along Seller to exercise such options, may, in place of such exercise, submit to irrevocable cancellation thereof without any liability for payment of any exercise price with respect thereto. If the Drag-Along Sale is not consummated with respect to any Shares acquired upon exercise of such options or warrants, such options or warrants shall be deemed not to have been exercised or canceled, as applicable.

(c) The pricing of the Shares to be sold in a Drag-Along Sale shall be as set forth in Section 3.3(a).

(d) Each Other Shareholder agrees with respect to all Company Securities that it holds or over which such Shareholder otherwise exercises dispositive power:

(1) in the event such Drag-Along Sale requires the approval of shareholders (including in the case of a merger or sale or exclusive license of all or substantially of the all of the assets of the Company) and the matter is to be brought to a vote at a shareholder meeting, to be present, in person or by proxy, as a holder of Company Securities, at all such meetings and be counted for the purposes of determining the presence of a quorum at such meetings; and to vote or cause to be voted (or execute and deliver any written consents in lieu thereof) all Company Securities in favor of such Drag-Along Sale and in opposition of any and all other proposals that could reasonably be expected to delay or impair the ability of the Company to consummate such Drag-Along Sale if so requested by the Drag-Along Seller;

(2) in the event that the Drag-Along Sale is to be effected by the sale of Shares held by the Drag-Along Seller without the need for shareholder approval, each Other Shareholder agrees to sell all Company Securities of the Company held by such Other Shareholder to the Proposed Transferee, for per-share consideration determined in accordance with the provisions of Section 3.3(a) and otherwise on the same terms and conditions as the Drag-Along Seller;

(3) to the extent permitted by applicable law, to refrain from exercising any dissenters' rights or rights of appraisal under applicable law at any time with respect to such Drag-Along Sale, provided it is conducted in accordance with this Section 3.2;

(4) subject to Section 3.3(b), to execute and deliver all related documentation and take such other action in support of the Drag-Along Sale as shall be reasonably requested by the Company or the Drag-Along Seller and is required of all other Shareholders; and

(5) not to deposit, and to cause their Affiliates not to deposit, any voting securities owned by such party in a voting trust or subject any such voting securities to any arrangement or agreement with respect to the voting of such shares of capital stock, unless specifically requested to do so by the acquiror in connection with a Drag-Along Sale.

(e) If an Other Shareholder (other than any Fidelity Investor and their respective Affiliates) fails or refuses to vote or sell his, her or its Company Securities as required by, or votes his, her or its Company Securities in contravention of this Section 3.2, then such Other Shareholder (other than any Fidelity Investor and their respective Affiliates) hereby grants to the Drag-Along Seller a proxy coupled with an interest to vote such Shares in accordance with this Section 3.2, and hereby appoints the Drag-

Along Seller as his, her or its attorney in fact, to execute and deliver in the name and on behalf of such Other Shareholder all such agreements, instruments and other documentation (including any written consents of shareholders) as are required to Transfer the Company Securities held by such Other Shareholder to the Proposed Transferee in accordance with the terms of this Section 3.2.

(f) To exercise a Drag-Along Right, the Drag-Along Seller shall give each Other Shareholder a written notice, whether before or after the consummation of the Drag-Along Sale and/or the approval of the Drag-Along Sale of the requisite stockholders of the Company (the "**Drag-Along Notice**"). If the Drag-Along Notice is provided after the execution of definitive agreements with respect to the Drag-Along Sale and/or the approval of the Drag-Along Sale of the requisite stockholders of the Company, each Other Shareholder shall nonetheless comply with the provisions of this Section 3.2 and Section 3.3. The Drag-Along Notice shall identify (i) the name and address of the Proposed Transferee, and (ii) the proposed purchase price, terms of payment and other material terms and conditions of the Proposed Transferee's offer. Each Other Shareholder shall thereafter be obligated to sell its Company Securities subject to such Drag-Along Notice.

(g) Not later than five (5) days after receipt of the Drag-Along Notice (the "**Drag-Along Notice Period**"), each of the Other Shareholders shall deliver to a representative of the Drag-Along Seller designated in the Drag-Along Notice the certificate and other applicable instruments representing the Company Securities of such Other Shareholder to be included in the Drag-Along Sale, together with wire transfer instructions for payment of the cash portion of the consideration to be received in such Drag-Along Sale, or, if such delivery is not permitted by applicable law, an unconditional agreement to deliver such Company Securities pursuant to this Section 3.2(g) at the closing for such Drag-Along Sale against delivery to such Other Shareholder of the consideration therefor. If an Other Shareholder should fail to deliver such certificates to the representative of the Drag-Along Seller and the Drag-Along Sale is consummated, the Company shall cause the books and records of the Company to reflect that such Company Securities are bound by the provisions of this Section 3.2 and that such Company Securities shall be Transferred to the Proposed Transferee immediately upon surrender for Transfer by the holder thereof.

(h) The Drag-Along Seller shall have a period of 120 days from the date of the Drag-Along Notice to consummate the Drag-Along Sale on the terms and conditions set forth in such Drag-Along Notice; provided, that if such Drag-Along Sale is subject to regulatory approval, such 120-day period shall be extended until the expiration of five (5) Business Days after all such approvals have been received, but in no event later than 180 days after the date of receipt of the Drag-Along Notice. If the Drag-Along Sale shall not have been consummated during such period, the Drag-Along Seller shall promptly return to each of the Other Shareholders all certificates and other applicable instruments representing Company Securities that such Other Shareholders delivered for

Transfer pursuant hereto, together with any other documents in the possession of the Drag-Along Seller executed by the Other Shareholders in connection with such proposed Transfer, and all the restrictions on Transfer contained in this Agreement or otherwise applicable at such time with respect to such Company Securities owned by the Other Shareholders shall again be in effect.

(i) Concurrently with the consummation of the Drag-Along Sale, the Drag-Along Seller shall give notice thereof to the Other Shareholders, shall remit or cause to be remitted to each of the Other Shareholders that has surrendered its certificates and other applicable instruments the total consideration to be paid at the closing of the Drag-Along Sale (the cash portion of which is to be paid by wire transfer of immediately available funds in accordance with such Other Shareholder's wire transfer instructions) for the Company Securities Transferred by such Other Shareholder pursuant hereto, and shall furnish such other evidence of the completion and time of completion of such Transfer and the terms thereof as may be reasonably requested by such Other Shareholders.

(j) Notwithstanding anything contained in this Section 3.2, there shall be no liability on the part of the Drag-Along Seller to the Other Shareholders (other than the obligation to return the certificates and other applicable instruments representing Company Securities received by the Drag-Along Seller) if the Transfer of Company Securities pursuant to this Section 3.2 is not consummated for whatever reason, regardless of whether the Drag-Along Seller has delivered a Drag-Along Notice. The decision to effect a Transfer of Company Securities pursuant to this Section 3.2 by the Drag-Along Seller is in the sole and absolute discretion of the Drag-Along Seller.

3.3 **Additional Provisions Related to Tag-Along Sales and Drag-Along Sales**.

Notwithstanding anything contained in Section 3.1 or Section 3.2 to the contrary, in connection with a Tag-Along Sale or a Drag-Along Sale:

(a) Upon the consummation of such Tag-Along Sale or Drag-Along Sale, all Shareholders of the same series of Company Securities participating therein will receive the same form and amount of consideration per share, or, if any Shareholder of a specified series of Company Securities is given an option as to the form and amount of consideration to be received, all Shareholders of such specified series of Company Securities participating therein will be given the same option, and all holders of the Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock (or, in each case, Common Stock received upon conversion thereof) will receive the same form of consideration with respect to such Series C Preferred Stock, Series C-1 Preferred Stock, Series C-2 Preferred Stock and Series D Preferred Stock (or, in each case, Common Stock received upon conversion thereof); provided, however, that, in the case of a Drag-Along Sale or a Tag-Along Sale that constitutes a Liquidity Event,

the proceeds shall be allocated among the classes and series of Shares in accordance with the Charter. If different classes or series of Shares are to be sold in a Tag-Along Sale and such sale does not constitute a Liquidity Event, the purchase price to be received by the Tag-Along Seller and the Participating Sellers shall be allocated after taking into account the relative value of the securities being transferred by each such Shareholder. The Board shall determine in good faith such relative value of each series and class of Shares to be sold in the Tag-Along Sale. For the avoidance of doubt, any fees paid to Avista Capital Holdings, LP or its affiliated investment funds in connection with any transaction constituting a Tag-Along Sale or Drag-Along Sale shall be considered in determining the amount of consideration per share referred to in the first sentence of this Section 3.3(a);

(b) Each Shareholder shall (i) make such representations, warranties and covenants and enter into such definitive agreements as are customary for transactions of the nature of the proposed Transfer related to authority, ownership and the ability to convey title to such Company Securities, (ii) benefit from and be subject to all of the same provisions of the definitive agreements as are applicable to the Tag-Along Seller or Drag-Along Seller, as the case may be, (iii) subject to the provisions of the Company's Certificate of Incorporation, be required to bear its proportionate share of any escrows, holdbacks or adjustments in respect of the purchase price or indemnification obligations; provided, that no Shareholder shall be obligated (A) to indemnify, other than severally indemnify, any Person in connection with such Tag-Along Sale or Drag-Along Sale, as the case may be, or (B) to incur liability to any Person in connection with such Tag-Along Sale or Drag-Along Sale, as the case may be, including, without limitation, under any indemnity, in excess of the lesser of (1) its pro rata share of such liability and (2) the proceeds realized by such Shareholder in such sale, and (iv) (other than any Fidelity Investor and their respective Affiliates) cooperate in obtaining all governmental and third-party consents and approvals reasonably necessary or desirable to consummate such Tag-Along Sale or Drag-Along Sale;

(c) In the event the consideration to be paid in exchange for Shares in a Tag-Along Sale or a Drag-Along Sale includes any securities, and the receipt thereof by a Shareholder would require under applicable law (a) the registration or qualification of such securities or of any Person as a broker or dealer or agent with respect to such securities where such registration or qualification is not otherwise required for the Tag-Along Sale or a Drag-Along Sale or (b) the provision to any Tag-Along Seller or Drag-Along Seller of any specified information regarding such securities or the issuer thereof that is not otherwise required to be provided for the Tag-Along Sale or Drag-Along Sale, then such Shareholder may be paid cash in lieu of such securities in such proposed Tag-Along Sale or Drag-Along Sale. In such event, the Tag-Along Seller or Drag-Along Seller, as the case may be, shall (i) in the case of a Tag-Along Sale, have the right, but not the obligation, and (ii) in the case of a Drag-Along Sale, have the obligation, to cause to be paid to such Shareholder in lieu thereof, against surrender of the Shares which would have otherwise been Transferred by such Shareholder to the prospective purchaser in the proposed Tag-Along Sale or a Drag-Along Sale, an amount in cash equal to the fair

market value (determined by the Board in good faith through a reasonable application of a reasonable valuation method) of such Shares as of the date such securities would have been issued in exchange for such Shares;

(d) In connection with a Drag-Along Sale, if requested by a majority of the members of the Board, the Company will promptly engage, on customary terms (including customary indemnification from the Company), a nationally recognized investment banking firm selected by the Drag-Along Seller and reasonably acceptable to the Board to provide financial advisory services to the Company, the Drag-Along Seller and the Other Shareholders, and the Company shall pay the fees and expenses of such investment banking firm;

(e) In connection with a Drag-Along Sale, the Company will, if applicable, enter into a definitive agreement with the proposed transferee(s) providing for such Transfer and make and agree to representations, warranties, covenants and indemnities and other similar agreements that are reasonable and customary for negotiated transactions of the type contemplated by such Transfer;

(f) The Company agrees to cooperate with any Shareholder and any proposed transferee (other than a Company Competitor in the case of a Tag-Along Sale), and their respective advisors, to facilitate and effect any Tag-Along Sale or Drag-Along Sale and, upon the request of any Shareholder that proposes to make a Tag-Along Sale or Drag-Along Sale, subject to any proposed transferee (other than a Company Competitor in the case of a Tag-Along Sale) executing a reasonably satisfactory confidentiality agreement with the Company, the Company will, and will cause its and its Subsidiaries' employees and personnel to, use its and their reasonable best efforts to facilitate and support any due diligence process being undertaken in connection with such proposed Tag-Along Sale or Drag-Along Sale;

(g) The Company and the Shareholders (other than any Fidelity Investor and their respective Affiliates) will cooperate in the obtaining of all governmental and third-party approvals and consents reasonably necessary or desirable to consummate such Transfer;

(h) All reasonable costs and expenses incurred by the Shareholders or the Company in connection with any proposed Drag-Along Sale (whether or not consummated), including all attorneys fees and charges, all accounting fees and charges and all finders, brokerage or investment banking fees, charges or commissions, shall be paid by the Company. The Drag-Along Seller may retain, and the Company will pay the reasonable fees and expenses of, a single legal counsel (and such local counsel as may be appropriate) in connection with any proposed Drag-Along Sale (whether or not consummated). All reasonable costs and expenses incurred by the Shareholders in connection with any proposed Tag-Along Sale (whether or not consummated), including all attorneys fees and charges, all accounting fees and charges and all finders, brokerage

or investment banking fees, charges or commissions, shall be borne by each transferor of Shares;

(i) No Fidelity Investor shall be bound by any restrictive covenant (such as any non-compete or other business limitation); and

(j) All notices to be issued as part of the procedures relating to a Tag-Along Sale and a Drag-Along Sale set forth in Section 3.1 and Section 3.2 shall, as applicable, be made pursuant to Section 8.9.

3.4 **Preemptive Rights**

(a) Prior to the consummation of an Initial Public Offering, the Company shall give each of the Shareholders that is (i) an "accredited investor" (as such term is defined in Rule 501(a) of the Securities Act) or (ii) located outside the United States and is not a "U.S. Person" as such term is defined in Regulation S under the Securities Act ("**Regulation S**") and that such Shareholder is obtaining the Company Securities in an "offshore transaction" (as such term is defined in Regulation S under the Securities Act) outside of the United States, each as of the time of any proposed issuance by the Company of shares of a specified class of Company Securities, written notice pursuant to Section 8.9 (an "**Issuance Notice**") of such proposed issuance at least ten (10) days prior to the proposed issuance date. The Issuance Notice shall specify the number of shares of the specified class of Company Securities and the price at which such Company Securities are proposed to be issued and the other material terms and conditions of the issuance, including, without limitation, the proposed closing date. Subject to Section 3.4(f), each Shareholder shall be entitled to purchase, at the price and on the other terms and conditions specified in the Issuance Notice, its pro rata amount of such newly issued Company Securities equal to (x) the number of shares of the specified class of Company Securities proposed to be issued by the Company multiplied by (y) a fraction, the numerator of which is the aggregate number of Shares owned by such Shareholder and the denominator of which is the aggregate number of Shares owned by all Shareholders, in each case on an as-converted basis.

(b) Each Shareholder may exercise its rights under this Section 3.4 by delivering written notice to the Company of its election to purchase such Company Securities within ten (10) days after receipt of the Issuance Notice. A delivery of such notice (which notice shall specify the number of shares of the specified class of Company Securities requested to be purchased by the Shareholder submitting such notice) by such Shareholder shall constitute a binding agreement of such Shareholder to purchase, at the price and on the terms and conditions specified in the Issuance Notice, the number of shares of the specified class of Company Securities specified in such Shareholder's notice. If, at the termination of such 10-day period, any Shareholder has not exercised its right to purchase any of its pro rata share of such Company Securities, such Shareholder shall be deemed to have waived all of its rights under this Section 3.4 with respect to, and

only with respect to, the purchase of such Company Securities specified in the Issuance Notice.

(c) The Company shall have 120 days after the date of the Issuance Notice to consummate the proposed issuance of any or all of such Company Securities that the Shareholders have elected not to purchase at the price and upon terms and conditions that are not materially less favorable to the Company than those specified in the Issuance Notice; provided, that if such issuance is subject to regulatory approval, such 120-day period shall be extended until the expiration of five (5) Business Days after all such approvals have been received, but in no event later than 180 days after the date of the Issuance Notice. At the consummation of such issuance, the Company shall issue certificates representing the Company Securities to be purchased by each Shareholder exercising preemptive rights pursuant to this Section 3.4 registered in the name of such Shareholder, against payment by such Shareholder of the purchase price for such Company Securities. If the Company proposes to issue any class of Company Securities after such 120-day period or on other terms materially less favorable to the issuer, it shall again comply with the procedures set forth in this Section 3.4.

(d) The closing of any issuance of Company Securities to the Shareholders pursuant to this Section 3.4, shall take place at the time and in the manner provided in the Issuance Notice. The Company shall be under no obligation to consummate any proposed issuance of Company Securities, nor shall there be any liability on the part of such entity to any Shareholder, if the Company has not consummated any proposed issuance of Company Securities pursuant to this Section 3.4 for whatever reason, regardless of whether it shall have delivered an Issuance Notice in respect of such proposed issuance.

(e) Notwithstanding the requirements of this Section 3.4, the Company may offer and sell shares of a specified class of Company Securities without first offering such Company Securities to each of the other Shareholders or complying with the procedures of this Section 3.4, so long as (i) each of the other Shareholders receives prompt written notice of the consummation of such sales, (ii) either the Company or the initial purchaser of such Company Securities commits (at the time of such initial sale) to make available for sale to such Shareholders a number of shares of the specified class of Company Securities equal to (x) the number of shares of the specified class of Company Securities issued by the Company (including all shares of the specified class of Company Securities issued or sold to Shareholders with respect to this provision) multiplied by (y) a fraction, the numerator of which is the aggregate number of Shares owned by such Shareholder and the denominator of which is the aggregate number of Shares owned by all Shareholders, each determined on an as-converted basis, within 45 days after the close of such sale on the same terms and conditions as such prior sale, and (iii) the price per share of such specified class of Company Securities shall be identical to the price per share paid in such prior sale.

(f) The preemptive rights under this Section 3.4 shall not apply to (i) issuances or sales of Company Securities to employees, officers, directors, consultants, customers or suppliers (including in connection with bona fide licensing, commercial or other strategic arrangements) of the Company or any Subsidiary pursuant to employee benefit, incentive or similar plans or agreements or arrangements of the Company, (ii) issuances or sales of Company Securities upon exercise, conversion or exchange of Company Securities outstanding as of the date hereof, (iii) Common Shares issued pursuant to conversion of preferred shares pursuant to Section 4.7 of the Charter, securities issued in connection with a stock split or stock dividend of the Company, (iv) the issuance of Company Securities to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction, (v) the issuance of Company Securities contemplated by the Subscription Agreement (including any Series D Shares issued pursuant to Sections 1.2 through 1.3 of the Subscription Agreement), (vi) issuances or sales in an Initial Public Offering, or as consideration for a merger of the Company with or into another Person or an acquisition by the Company of another Person or substantially all the assets of another Person, (vii) issuances as consideration for sponsored research, collaboration, technology license, development, OEM, marketing or other similar agreements or strategic partnerships approved or (viii) any Series C-2 Shares issued pursuant to the Note Conversion Agreement, in each case of (i) — (vii) as approved in accordance with the Charter.

3.5 **Call Right**.

(a) Upon any Management Shareholder ceasing to be employed by, or providing services to, the Company or one of its Subsidiaries (a "**Terminated Shareholder**") for any reason (a "**Termination Event**"), subject to the provisions of this Section 3.5, the Company shall have the option to purchase (the "**Call Right**"), and if such option is exercised, such Terminated Shareholder shall sell, and shall cause any Permitted Transferees of such Terminated Shareholder to sell, to the Company all or any portion of the Company Securities (A) that are Purchased Securities acquired, prior to and as of the date of the occurrence of such Termination Event (the "**Termination Date**"), or (B) that are Incentive Securities acquired prior to and as of the Termination Date, or acquired after such Termination Date pursuant to the exercise of Common Shares options in accordance with the terms of such Common Shares options (together with all Purchased Securities, the "**Termination Securities**"), at a price per Termination Security equal to the applicable Termination Price (as determined pursuant to Section 3.5(d) below) of the Termination Securities. The Company may assign all or a portion of the Call Right to the Avista Investors or Fidelity Investors on a pro rata basis (based on their respective ownership on an as-converted basis of Shares). If the Call Right is assigned, the Avista Investors and Fidelity Investors shall have the rights and benefits granted to the Company in this Section 3.5.

(b) With respect to each Termination Security, the Company shall notify a Terminated Shareholder in writing, within the Call Period with respect to such Termination Security, whether the Company will exercise its right to purchase such Termination Security (the date on which a Terminated Shareholder is so notified, the "**Call Notice Date**").

(c) The closing of the purchase by the Company of Termination Securities pursuant to this Section 3.5 shall take place at the principal office of the Company on the date chosen by the Company, which date shall, except as may be reasonably necessary to determine the Termination Price, in no event be more than forty-five (45) days after the Call Notice Date. At such closing, (i) the Company shall pay the Terminated Shareholder and/or such Terminated Shareholder's Permitted Transferees, as applicable, against delivery of duly endorsed certificates described below representing such Termination Securities, the aggregate Termination Price by wire transfer of immediately available federal funds and (ii) the Terminated Shareholder and/or such Terminated Shareholder's Permitted Transferees, as applicable, shall deliver to the Company a certificate or certificates representing the Termination Securities to be purchased by the Company duly endorsed, or with stock powers duly endorsed, for transfer with signature guaranteed, free and clear of any lien or encumbrance, with any necessary stock transfer tax stamps affixed. The delivery of a certificate or certificates for the Termination Securities by any Person selling such Termination Securities pursuant to this Section 3.5 shall be deemed a representation and warranty by such Person that: (A) such Person has full right, title and interest in and to such Termination Securities; (B) such Person has all necessary power and authority and has taken all necessary action to sell such Termination Securities as contemplated; (C) such Termination Securities are free and clear of any and all liens or encumbrances; and (D) there is no adverse claim with respect to such Termination Securities.

(d) Termination Price. For purposes of this Section 3.5, if the employment or other service arrangement of a Management Shareholder is terminated, the "**Termination Price**" per Termination Security purchased by the Company pursuant to the Call Right shall equal the value as set forth below:

Employment Termination	**Purchased Securities**	**Incentive Securities**
By the Company or any Subsidiary thereof without Cause or by the Management	Fair Market Value	Fair Market Value

Shareholder for Good Reason		
By the Company or any	Lower of Cost or Fair	Lower of Cost or Fair

Employment Termination	Purchased Securities	Incentive Securities
Subsidiary thereof with Cause	Market Value	Market Value
By the Management Shareholder without Good Reason	Fair Market Value	Lower of Cost or Fair Market Value
Death or Disability	Fair Market Value	Fair Market Value

For purposes of this Section 3.5(d), "Fair Market Value" shall be the Fair Market Value on the FMV Calculation Date.

(e) Payment. The Company shall pay the Termination Price in cash, by wire transfer of immediately available federal funds.

(f) Termination of Call Right. The Call Rights under this Section 3.5 shall terminate one (1) year after the consummation of the Initial Public Offering.

4. BOARD OF DIRECTORS

4.1 **Election of Directors**. Each Shareholder agrees to vote all Company Securities (or executing and delivering any written consents in lieu thereof), whether now owned or hereafter acquired or which such Shareholder may be empowered to vote, at a general meeting of the shareholders or otherwise from time to time and at all times, in whatever manner shall be necessary to ensure that the Board shall be designed as follows:

(a) One individual designated by the Founder (the "**Founder Director**"). The Founder Director initially shall be Per Djupesland.

(b) The Company's Chief Executive Officer (the "**CEO Director**"), provided that if for any reason the CEO leaves the Company, then the CEO Director shall be deemed to have resigned from the Board upon ceasing to be Chief Executive Officer and each of the Shareholders shall promptly vote their respective Shares to elect the replacement CEO as the new CEO Director. The CEO Director initially shall be Peter Miller.

(c) One (1) individual to be designated by holders of a majority of the Series A Shares (the "**Series A Director**"). The Series A Director initially shall be Klaas de Boer.

(d) One (1) individual to be designated by holders of a majority of the Series B Shares (the "**Series B Director**"). The Series B Director initially shall be William F. Doyle.

(e) Four (4) individuals to be designated by holders of a majority of the Series C Shares (each, a "**Series C Director**"), two of whom shall be designated independently by Avista Capital Partners II, LP. The directors appointed by the Series C Shares initially shall be Larry Pickering, Patrick O'Neill, Sriram Venkataraman, and Joshua Tamaroff. Larry Pickering shall serve as the chairman of the Board.

(f) Two (2) individuals to be designated by holders of a majority of the Series C-1 Shares (each, a "**Series C-1 Director**"). The Series C-1 Director seats shall initially be vacant.

4.2 **Removal of Directors**. The Shareholders agree that each party who has the right to designate member(s) of the Board pursuant to Section 4.1 shall also have the right to remove such designee from the Board at any time. Each of the Shareholders agrees to take whatever action is necessary to effect any removal requested by such party. No Shareholder shall, at any time it is then entitled to vote for the removal of directors from the Board, vote any of its Company Securities in favor of the removal of any director designated pursuant to Section 4.1, unless the designating party shall have requested such removal in writing.

4.3 **Replacement Directors**. If any director is unable to serve, or is removed or withdraws from the Board, such withdrawing director's replacement will be designated by the party which designated such director in accordance with Section 4.1 and each Shareholder then entitled to vote for the election of directors to the Board shall vote all of its Company Securities that are entitled to vote or execute proxies or written consents, as the case may be, in order to ensure that the such replacement designee is elected to the Board (or to take whatever action is necessary to effect any replacement requested by such party). If such designating party is no longer a Shareholder, or is no longer entitled to designate a replacement director, the withdrawing director's replacement will be elected by the then-current shareholders by majority vote of all Shares on an as-converted basis.

4.4 **Unfilled Vacancy**. Any parties entitled to appoint director(s) in accordance with Section 4.1 may, in their sole discretion, decide not to elect one or more such directors, and during any period when there is a vacancy on the Board as a result of such decision not to appoint one or more directors, the Board shall not be deemed unduly constituted solely as a result of such vacancy.

4.5 **Observers**. Observers may participate in board meetings from time to time subject to Board approval; provided, however, that as long as the Fidelity Investors collectively own not less than twenty-five percent (25%) of the Series D Shares they are

purchasing under the Subscription Agreement (or an equivalent amount of Common Shares issued upon conversion thereof), in the aggregate, the Company shall invite a representative of the Fidelity Investors to attend all meetings of its Board of Directors and any committees thereof in a nonvoting observer capacity and, in this respect, shall give such representative (and the Fidelity Investors) copies of all notices, minutes, consents, and other materials that it provides to its directors at the same time and in the same manner as provided to such directors. Observers are not entitled to vote; provided, however, that the Fidelity Investors shall cause such observer to hold in confidence and trust all information so provided to the extent required by Section 5.4; and provided further, that the Company reserves the right to withhold any information and to exclude such observer from any meeting or portion thereof if access to such information or attendance at such meeting could adversely affect the attorney-client privilege between the Company and its counsel or result in disclosure of trade secrets or a conflict of interest, or if such representative is associated with a Company Competitor (but not solely by virtue of any investments that any Fidelity Investor may have in a Competitor).

4.6 **Actions by the Board of Directors**. Except as otherwise set forth herein or required by law, all decisions of the Board shall require the affirmative vote of a majority of its members.

4.7 **Quorum**. A quorum of the Board shall consist of a majority of the members of the Board being present in person or by telephone, which majority shall include at least two Series C Directors, provided, however, that if all Series C Directors have failed to attend three consecutive Board meetings (in person or telephonic) without a bona fide reason and after notice has been duly provided in accordance with the Bylaws, a Series C Director shall not be required for a quorum at the next such Board meeting.

4.8 **Committees**. In addition to any committees formed by the Board in accordance with its Charter and Bylaws from time to time, the Board shall establish a compensation committee and an audit committee which shall at all times include at least one Series C Director.

4.9 **Subsidiaries**. The board of directors (and any committees thereof) of all Subsidiaries of the Company will consist of such persons as the Company shall direct; provided, that the holders of Series C Shares shall have the right to appoint members to such board of directors (or committees) in the same proportions as set forth in Section 4.1.

4.10 **Expenses**. The Company shall reimburse the members of the Board and the representative designated pursuant to Section 4.5 for all reasonable out-of-pocket travel expenses and attendant costs related to attending Board meetings and otherwise providing services on behalf of the Company or its Subsidiaries in their capacity as directors.

4.11 **No "Bad Actor" Disqualification**.

(a) Each Shareholder that (collectively with its Affiliates) is a beneficial owner of 20% or more of the Company or has the right to designate a director of the Company pursuant to the provisions of Section 4.1 hereby represents and warrants that:

(1) neither it nor any related party described in Rule 506(d)(1) of the Securities Act ("**Beneficial Owner**") is subject to any of the "bad actor" disqualifications described in Rule 506(d)(1)(i) through (viii) under the Securities Act ("**Disqualification Events**"), included as Schedule 4.11(a) attached hereto, except for Disqualification Events covered by Rule 506(d)(2)(ii) or (iii) or (d)(3) under the Securities Act and disclosed in writing in reasonable detail to the Company and the other Shareholders;

(2) it has exercised reasonable care to determine whether any Director designated by it under Section 4.1 is subject to any Disqualification Event;

(3) it has provided the Company and the other Shareholders with any and all information reasonably requested by the Company or otherwise necessary for the Company to determine, in the exercise of reasonable care, whether any such Director is subject to any Disqualification Event;

(4) any information furnished to the Company or the other Shareholders with respect to the potential applicability of Disqualification Events to any such Director is true, correct and complete; and

(5) no Director designated by it under Section 4.1 is subject to a Disqualification Event, except for Disqualification Events covered by Rule 506(d)(2)(ii) or (iii) or (d)(3) under the Securities Act and disclosed in writing in reasonable detail to the Company and the other Shareholders.

(b) Each Shareholder that (collectively with its Affiliates) is a beneficial owner of 20% or more of the Company or has the right to designate a director of the Company pursuant to the provisions of Section 4.1 agrees to exercise reasonable care to determine whether any of its designated or potential Directors or any Beneficial Owner is subject to any Disqualification Event, and shall promptly provide the Company and the other Shareholders to this Agreement with any and all information reasonably requested by the Company or otherwise necessary for the Company to determine, in the exercise of reasonable care, whether any designated or potential Director or Beneficial Owner is subject to any Disqualification Event. Each Shareholder that has the right to designate a director of the Company pursuant to the provisions of Section 4.1 agrees that it will not designate a Director that is subject to any Disqualification Event, except for Disqualification Events covered by Rule 506(d)(2)(ii) or (iii) or (d)(3) under the

Securities Act. With respect to any such Disqualification Event covered by Rule 506(d)(2)(ii) or (iii) or (d)(3), the relevant Shareholder will promptly disclose in writing to the Company and the other Shareholders any and all information necessary for the Company to determine whether Rule 506(d)(2)(ii) or (iii) or (d)(3) applies. Each Shareholder that (collectively with its Affiliates) is a beneficial owner of 20% or more of the Company or has the right to designate a

director of the Company pursuant to the provisions of Section 4.1 will promptly notify the Company and each other Shareholder in writing if it, any Beneficial Owner or, to its knowledge, any of its designated or potential Directors is subject to any Disqualification Event.

(c) Notwithstanding any other provision in this Agreement to the contrary, no Shareholder shall be required to vote to elect (or maintain in office) any person that is subject to a Disqualification Event, except for Disqualification Events covered by Rule 506(d)(2)(ii) or (iii) or (d)(3) under the Securities Act.

(d) From time to time during the term of this Agreement, any Shareholder may request the removal of a director that is subject to any Disqualification Event, except for Disqualification Events covered by Rule 506(d)(2)(ii) or (iii) or (d)(3) under the Securities Act, by written notice to the Company and the other Shareholders specifying, in reasonable detail, the Disqualification Event. If the Company reasonably determines that a Director is subject to a Disqualification Event, except for Disqualification Events covered by Rule 506(d)(2)(ii) or (iii) or (d)(3) under the Securities Act:

(1) the Company shall promptly notify each Shareholder to this Agreement and take such reasonable actions as are necessary to facilitate such removal, including, without limitation, soliciting the votes of the appropriate shareholders; and

(2) the Shareholders shall vote their Company Securities to cause the removal from the Company's Board of the Director.

5. COVENANTS

5.1 **Delivery of Financial and Other Information**.

(a) The Company shall provide the following information to both (a) Ikos, for so long as Ikos owns three percent (3%) of the issued and outstanding capital stock of the Company (as determined on a fully diluted as-converted basis), and (b) the Investors, TKWD and Entrepreneurs' Fund, in each case for as long as such Shareholder continues to hold at least twenty-five percent (25%) of the Shares (on an as-converted basis) as they hold on the date of this Agreement:

(1) within twenty (20) days following the end of each month, unaudited consolidated balance sheet of the Company and its Subsidiaries as of the end of

such prior month, and consolidated statements of income and cash flows of the Company and its Subsidiaries for the period then ended;

(2) within forty-five (45) days following the end of each fiscal quarter, (i) a fully diluted capitalization table of the Company and (ii) unaudited consolidated balance sheet of the Company and its Subsidiaries as of the end of such period, and consolidated statements of income and cash flows of the Company and its Subsidiaries for the period then ended;

(3) not later than thirty (30) days before the commencement of the next fiscal year of the Company, a budget and cash flow projection and operating plan for the next three fiscal years (broken down into periods of one calendar month for the first year and calendar quarter for the two subsequent years); and

(4) with respect to each fiscal year of the Company after 2013, a consolidated balance sheet of the Company and its subsidiaries as of the end of such year, and consolidated and consolidating statements of income and cash flows of the Company and its Subsidiaries for the year then ended (which have been audited by an accounting firm of international repute), prepared in accordance with GAAP (the "**Annual Financial Statements**"), together with any management letters in respect of them, promptly upon the same becoming available and, in any event, not later than (x) forty-five (45) days for unaudited Annual Financial Statements and (y) 120 days for audited Annual Financial Statements following the end of the financial period to which they relate or, in each case, such longer period as is approved by the Board.

(b) For so long as Invictum AS owns at least two percent (2%) of the issued and outstanding capital stock of the Company (as determined on a fully diluted as-converted basis), the Company shall provide copies of the financial statements described in Sections 5.1(a)(2) and 5.1(a)(4) above to Invictum AS at the address set forth on Schedule A hereto within five (5) Business Days of providing such financial statements to the Investors and certain other Shareholders pursuant to Sections 5.1(a)(2) and 5.1(a)(4) above, as applicable. This Section 5(b) may not be amended without the written consent of Invictum AS but, for the avoidance of doubt, to the extent that the timing of delivery of or nature of the financial statements delivered to the Investors and certain other Shareholders are amended, including pursuant to amendments to Sections 5.1(a)(2) and/or 5.1(a)(4), such amendments shall apply with respect to any financial statements delivered pursuant to this Section 5.1(b) and shall not require the consent of Invictum AS so long as, if Invictum AS continues to satisfy the two percent (2%) ownership threshold provided above, Invictum AS continues to receive any quarterly and annual financial statements delivered to such Investors and other Shareholders.

(c) The Company shall promptly and accurately respond, and shall use its best efforts to cause its transfer agent to promptly respond, to requests for information made on behalf of any Fidelity Investor relating to (x) accounting or securities law

matters required in connection with its audit or (y) the actual holdings of the Fidelity Investors, including in relation to the total outstanding shares; provided, however, that the Company shall not be obligated to provide any such information that could reasonably result in a violation of applicable law or conflict with the Company's insider trading policy or a confidentiality obligation of the Company. The rights of the Fidelity Investors under this Section shall expire once no Fidelity Investor or Affiliate thereof holds any securities of the Company that are restricted under the Securities Act.

5.2 **Inspection**. The Company shall permit each of the Investors, TKWD and Entrepreneurs' Fund to visit and inspect the properties of the Company and its Subsidiaries, to examine the books of account and records and to discuss their respective affairs, finances and accounts with its officers, upon at least three (3) days advance notice and at such reasonable times as may be requested by the Investor; provided further, however, that the Company shall not be obligated pursuant to this Section 5.2 to provide access to any information that it reasonably considers to be a trade secret.

5.3 **Employment Conditions**. The Company undertakes to require each employee hired by the Company following the date hereof to execute, or cause to be executed in the case of its subsidiaries, an employment and non-competition contract in a form reasonably acceptable to the Investors, and each employee and each consultant hired by the Company or subsidiary following the date hereof to execute a non-disclosure and inventions assignment agreement in a form reasonably acceptable to the Investors.

5.4 **Confidentiality**.

(a) Each Shareholder agrees that it shall (and shall cause its Affiliates (other than Affiliates that are a Company Competitor) and its and their officers, directors, employees, partners, legal counsel, agents and representatives to) (collectively, the "**Confidentiality Affiliates**") (i) hold confidential and not disclose (other than by a Shareholder to its Confidentiality Affiliates having a reasonable need to know in connection with the permitted purposes hereunder), without the prior written consent of the Board, all confidential or proprietary written, recorded or oral information or data (including research, developmental, engineering, manufacturing, technical, marketing, sales, financial, operating, performance, cost, business and process information or data, know-how and computer programming and other software techniques) provided or developed by the Company, another Shareholder or its Confidentiality Affiliates in connection with the business of the Company or its Subsidiaries, whether such confidentiality or proprietary status is indicated orally or in writing or in a context in which the Company or the disclosing Shareholder or its Confidentiality Affiliates reasonably communicated, or the receiving Shareholder or its Confidentiality Affiliates should reasonably have understood, that the information should be treated as confidential, whether or not the specific words "confidential" or "proprietary" are used ("**Confidential Information**") and (ii) use such Confidential Information only for the purposes of performing its obligations hereunder to which it is a party and carrying on the business of

the Company and monitoring its investment in the Company; provided, however, that Shareholders may disclose any such Confidential Information on a confidential basis to current and prospective lenders in connection with a loan or prospective loan to a Shareholder and to prospective purchasers of Company Securities from a Shareholder (including disclosure to a potential purchaser in Drag-Along Sale), as well as to their legal counsel, auditors, agents and representatives. Notwithstanding the foregoing, Shareholders may disclose any such Confidential Information on a confidential basis to limited partners or prospective limited partners or investors of a Shareholder or its Confidentiality Affiliates.

(b) The obligations contained in Section 5.4(a) shall not apply, or shall cease to apply, to Confidential Information if or when, and to the extent that, such Confidential Information (i) was, or becomes through no breach of the receiving Shareholder's obligations hereunder, known to the public, (ii) becomes known to the receiving Shareholder or its Confidentiality Affiliates from other sources under circumstances not involving any breach of any confidentiality obligation between such source and the disclosing Shareholder's or discloser's Confidentiality Affiliates or a third party, (iii) is independently developed by the receiving Shareholder or its Confidentiality Affiliates, or (iv) is required to be disclosed by law, governmental regulation or applicable legal process.

5.5 **Press Releases**. The Company shall not issue any press release regarding the Company without the Investors' prior written consent; provided, however, that, notwithstanding the foregoing, the Company may advise customers or potential customers or strategic partners that such party is an investor in the Company's securities and no press release may be issued that includes the name of or refers to Entrepreneurs' Fund without its prior written consent. Holders of the Series C Shares, Series C-1 Shares, Series C-2 Shares and Series D Shares shall each be entitled (but not obligated) to be mentioned as investors in the Company and to include its or their company description in the Company's press releases.

5.6 **Directors' and Officers' Insurance**. The Company shall maintain for such periods as the Board shall in good faith determine, at its expense, insurance in an amount determined in good faith by the Board to be appropriate, on behalf of any person who after the date of this Agreement is or was a director or officer of the Company or any Subsidiary, or is or was serving at the request of the Company or any Subsidiary as a director, officer, employee or agent of another limited company, corporation, partnership, joint venture, trust or other enterprise, including any Subsidiary of the Company, against any expense, liability or loss asserted against such Person and incurred by such Person in any such capacity, or arising out of such Person's status as such, subject to customary exclusions.

5.7 **No Exclusive Duty to Company**. In recognition that certain of the Shareholders currently have, and will in the future have or will consider acquiring,

investments in numerous companies with respect to which such Shareholder may serve as an advisor, a director or in some other capacity, and in recognition that such Shareholder may have a myriad of duties to various investors and partners, and in anticipation that the Company, on the one hand, and such Shareholder (or one or more Affiliates, associated investment funds or portfolio companies), on the other hand, may engage in the same or similar activities or lines of business and have an interest in the same areas of corporate opportunities, and in recognition of the benefits to be derived by the Company hereunder and in recognition of the difficulties which may confront any Shareholder who desires and endeavors fully to satisfy such Shareholder's duties, in determining the full scope of such duties in any particular situation, the provisions of this Section 5.7 are set forth to regulate, define and guide the conduct of certain affairs of the Company as they may involve such Shareholder.

(a) Such Shareholder shall have the right:

(1) to directly or indirectly engage in or invest in any business (including, without limitation, any business activities or lines of business that are the same as or similar to those pursued by, or competitive with, the Company and its Subsidiaries),

(2) to directly or indirectly do business with any client or customer of the Company and its Subsidiaries,

(3) to take any other action that such Shareholder believes in good faith is necessary to or appropriate to fulfill its duties and obligations as described in the first sentence of this Section 5.7, and

(4) not to present potential transactions, matters or business opportunities to the Company or any of its Subsidiaries, and to pursue, directly or indirectly, any such opportunity for itself, and to direct any such opportunity to another person.

(b) Such Shareholder and its Affiliates shall have no duty (contractual or otherwise) to communicate or present any corporate opportunities to the Company or any of its Affiliates or to refrain from any actions specified in Section 5.7(a), and the Company, on its own behalf and on behalf of its Affiliates, hereby renounce and waive any right to require such Shareholder or its Affiliates to act in a manner inconsistent with the provisions of this Section 5.7(a).

(c) Such Shareholder and its Affiliates shall not be liable to the Company or any of its Affiliates for breach of any duty (contractual or otherwise) by reason of any activities or omissions of the types referred to in this Section 5.7 or such Shareholder's or its Affiliates' participation therein.

5.8 **Conflicting Agreements**. Each Shareholder represents and agrees that it shall not (i) grant any proxy or enter into or agree to be bound by any voting trust or agreement with respect to the Company Securities, except as expressly contemplated by this Agreement, (ii) enter into any agreement or arrangement of any kind with any Person with respect to its Company Securities inconsistent with the provisions of this Agreement or for the purpose or with the effect of denying or reducing the rights of any other Shareholder under this Agreement, including agreements or arrangements with respect to the Transfer or voting of its Company Securities or (iii) act, for any reason, as a member of a group or in concert with any other Person in connection with the Transfer or voting of its Company Securities in any manner that is inconsistent with this Agreement.

6. VOTING RIGHTS

6.1 **Series A Voting Rights**. In addition to any other vote required by the first sentence of Section 242(b)(2) of the DGCL, or any similar provision hereafter enacted, the Company shall not amend the Charter or take any other action so as to amend, alter or repeal the powers, preferences or special rights of the Series A Shares in a manner that affects them adversely and disproportionately (determined after considering and taking into account the relative rights and preferences of each of the classes and series of Company Securities as compared to each other), without having first obtained the affirmative vote or written consent of a majority of the Series A Shares, consenting or voting (as the case may be) separately as a class; it being understood and acknowledged that an increase in the authorized capital stock of the Company (including the authorization of a security that is senior to a class or series of existing preferred stock) shall not be deemed to be and adverse or disproportionate amendment or alteration within the meaning of this Section 6.1.

6.2 **Series B Voting Rights**. In addition to any other vote required by the first sentence of Section 242(b)(2) of the DGCL, or any similar provision hereafter enacted, the Company shall not amend the Charter or take any other action so as to amend, alter or repeal the powers, preferences or special rights of the Series B Shares in a manner that affects them adversely and disproportionately (determined after considering and taking into account the relative rights and preferences of each of the classes and series of Company Securities as compared to each other), without having first obtained the affirmative vote or written consent of a majority of the Series B Shares, consenting or voting (as the case may be) separately as a class; it being understood and acknowledged that an increase in the authorized capital stock of the Company (including the authorization of a security that is senior to a class or series of existing preferred stock) shall not be deemed to be and adverse or disproportionate amendment or alteration within the meaning of this Section 6.2.

7. TERMINATION

7.1 **Termination**. This Agreement shall continue in force until the earlier of (a) the consummation of a merger in which the Company is not the surviving entity or any other transaction resulting in a Change of Control of the Company and (b) the effective date of an Initial Public Offering of the Company (it being understood that this Agreement shall terminate on such effective date); provided, however, the provisions of Section 1.1(f), Section 1.1(g), Section 5.4, Section 5.6, Section 5.7, Section 8.2, Section 8.3, Section 8.4, Section 8.5, Section 8.6, Section 8.9, Section 8.11 and Section 8.13 shall survive an Initial Public Offering.

8. MISCELLANEOUS

8.1 **Shareholder Undertakings**.

(a) The Shareholders (other than any Fidelity Investor and their respective Affiliates) undertake to cause the Company to take such action that is within its power at all times after the Initial Closing to cause the Company to issue such number of duly authorized shares as shall be sufficient to effect the issuance of the Series D Shares and otherwise as contemplated by the Subscription Agreement. The Company shall and the Shareholders (other than any Fidelity Investor and their respective Affiliates) shall cause the Company to obtain any authorization, consent, approval or other action by or make any filing with any court or administrative body that may be required under applicable laws in connection with the issuance of shares according to the Subscription Agreement and the Shareholders (other than any Fidelity Investor and their respective Affiliates) shall support and agree to such action and shall execute any document necessary to obtain or effect the foregoing.

(b) The Investors may from time to time reach agreement with Existing Shareholders to purchase shares owned by such Existing Shareholders in the Company. Each other Existing Shareholder hereby agrees to reasonably cooperate with any such purchase, including, without limitation, by cooperating with any regulatory filings that need to be made or regulatory consent obtained in connection with such transfers or by providing required consents or waivers of redemption, right of first refusal, preemptive or other rights that the Existing Shareholders may have in connection with such transfers.

(c) Each Shareholder (other than any Fidelity Investor and their respective Affiliates) shall vote all of its Company Securities that are entitled to vote or execute proxies or written consents, as the case may be, and take all other actions necessary, to ensure that the Company's Bylaws (i) facilitate, and do not at any time conflict with, any provision of this Agreement and (ii) permit each Shareholder to receive the benefits to which such Shareholder is entitled under this Agreement.

8.2 **Successors and Assigns**. Except as otherwise provided herein, the terms and conditions of this Agreement shall inure to the benefit of and be binding upon the respective successors and assigns of the parties (including transferees of any Shareholder permitted hereunder). Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and assigns any rights, remedies, obligations, or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement. Any Shareholder that ceases to beneficially own any Company Securities shall cease to be bound by the terms hereof (other than as expressly set forth herein or with respect to Section 5.5 or Article 8).

8.3 **Governing Law**. This Agreement and all claims or causes of action that may be based upon, arise out of or relate to this Agreement will be governed by, and construed under and in accordance with, the internal laws of the State of New York, without reference to rules relating to conflicts of laws.

8.4 **Consent to Jurisdiction**.

(a) EACH OF THE PARTIES HERETO HEREBY CONSENTS TO THE EXCLUSIVE JURISDICTION OF ALL STATE AND FEDERAL COURTS LOCATED IN NEW YORK COUNTY, NEW YORK, WITH RESPECT TO ANY CLAIMS MADE HEREUNDER, AS WELL AS TO THE JURISDICTION OF ALL COURTS TO WHICH AN APPEAL MAY BE TAKEN FROM SUCH COURTS, FOR THE PURPOSE OF ANY SUIT, ACTION OR OTHER PROCEEDING ARISING OUT OF, OR IN CONNECTION WITH, THIS AGREEMENT OR ANY OF THE TRANSACTIONS CONTEMPLATED HEREBY. EACH PARTY HEREBY EXPRESSLY WAIVES ANY AND ALL RIGHTS TO BRING ANY SUIT, ACTION OR OTHER PROCEEDING IN OR BEFORE ANY COURT OR TRIBUNAL OTHER THAN THE COURTS DESCRIBED ABOVE AND COVENANTS THAT IT SHALL NOT SEEK IN ANY MANNER TO RESOLVE ANY DISPUTE OTHER THAN AS SET FORTH IN THIS SECTION 8.4 OR TO CHALLENGE OR SET ASIDE ANY DECISION, AWARD OR JUDGMENT OBTAINED IN ACCORDANCE WITH THE PROVISIONS HEREOF.

(b) EACH OF THE PARTIES HERETO HEREBY EXPRESSLY WAIVES ANY AND ALL OBJECTIONS IT MAY HAVE TO VENUE, INCLUDING, WITHOUT LIMITATION, THE INCONVENIENCE OF SUCH FORUM, IN ANY OF SUCH COURTS. IN ADDITION, EACH OF THE PARTIES FURTHER AGREES THAT SERVICE OF ANY PROCESS, SUMMONS, NOTICE OR DOCUMENT BY U.S. REGISTERED MAIL TO SUCH PARTY'S RESPECTIVE ADDRESS SET FORTH IN THIS AGREEMENT SHALL BE EFFECTIVE SERVICE OF PROCESS FOR ANY ACTION IN NEW YORK WITH RESPECT TO ANY MATTERS TO WHICH IT HAS SUBMITTED TO JURISDICTION HEREUNDER.

8.5 **Waiver of Jury Trial**.

EACH PARTY HERETO ACKNOWLEDGES AND AGREES THAT ANY CONTROVERSY WHICH MAY ARISE UNDER THIS AGREEMENT IS LIKELY TO INVOLVE COMPLICATED AND DIFFICULT ISSUES, AND THEREFORE IT HEREBY IRREVOCABLY AND UNCONDITIONALLY WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LITIGATION DIRECTLY ARISING OUT OF OR RELATING TO THIS AGREEMENT AND ANY OF THE AGREEMENTS DELIVERED IN CONNECTION HEREWITH OR THE TRANSACTIONS CONTEMPLATED HEREBY OR THEREBY. EACH PARTY HERETO CERTIFIES AND ACKNOWLEDGES THAT (A) NO REPRESENTATIVE, AGENT OR ATTORNEY OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT, IN THE EVENT OF LITIGATION, SEEK TO ENFORCE SUCH WAIVER, (B) IT UNDERSTANDS AND HAS CONSIDERED THE IMPLICATIONS OF SUCH WAIVER, (C) IT MAKES SUCH WAIVER VOLUNTARILY, AND (D) IT HAS BEEN INDUCED TO ENTER INTO THIS AGREEMENT BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 8.5.

8.6 **Non-Recourse**. Notwithstanding anything that may be expressed or implied in this Agreement, the Company and each Shareholder covenant, agree and acknowledge that no recourse under this Agreement or any documents or instruments delivered in connection with this Agreement shall be had against any current or future director, officer, employee, general or limited partner or member of any Shareholder or of any Affiliate or assignee thereof, whether by the enforcement of any assessment or by any legal or equitable proceeding, or by virtue of any statute, regulation or other applicable law, it being expressly agreed and acknowledged that no personal liability whatsoever shall attach to, be imposed on or otherwise be incurred by any current or future officer, agent or employee of any Shareholder or any current or future member of any Shareholder or any current or future director, officer, employee, partner or member of any Shareholder or of any Affiliate or assignee thereof, as such for any obligation of any Shareholder under this Agreement or any documents or instruments delivered in connection with this Agreement for any claim based on, in respect of or by reason of such obligations or their creation.

8.7 **Counterparts; Facsimile Signatures**. This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original but all of which shall constitute one and the same agreement. Each Party to this Agreement agrees that its own facsimile signature will bind it and that it accepts the facsimile signature of each other Party to this Agreement.

8.8 **Titles and Subtitles**. The titles and subtitles used in this Agreement are used for convenience only and are not to be considered in construing or interpreting this Agreement.

8.9 **Notices**. All notices, requests, consents, demands and other communications under this Agreement shall be in writing and shall be sent by registered or certified mail, return receipt requested, postage prepaid or via a reputable nationwide overnight courier service guaranteeing next business day delivery, in each case to the intended recipient as set forth below:

If to the Company at the address set forth below the Company's signature to this Agreement, Attention: Chief Executive Officer, or at such other address as may have been furnished in writing by the Company to the other parties hereto with copies to Hogan Lovells LLP, 555 13th Street, NW, Washington, DC 20004, attention: Kevin C. Clayton, Esq., TKWD Ventures LLC, at the address set forth on Exhibit B, Ikos, at the address set forth on Exhibit B, and Entrepreneurs' Fund at the address set forth on Exhibit B; or

If to the Investors at the address set forth below the Investors' signatures to this Agreement, or at such other address as may have been furnished in writing by such Investors to the Company or the other parties hereto.

If to a Founder, at the address set forth below such Founder's signature to this Agreement, or at such other address as may have been furnished in writing by such Founder to the Company or the other parties hereto.

If to an Existing Shareholder, at the address set forth below such party's signature to this Agreement, or at such other address as may have been furnished in writing by such party to the Company or the other parties hereto. Any party may change the address to which notices, requests, consents or other communications hereunder are to be delivered by giving the other parties notice in the manner set forth in this section.

8.10 **Further Assurances**. Each Party (other than any Fidelity Investor and their respective Affiliates) shall cooperate and take such action as may be reasonably requested by another party in order to carry out the provisions and purposes of this Agreement and the transactions contemplated hereby.

8.11 **Specific Performance**. Each Party hereto acknowledges that the remedies at law of the other parties for a breach or threatened breach of this Agreement would be inadequate and, in recognition of this fact, any Party to this Agreement, without posting any bond, and in addition to all other remedies that may be available, shall be entitled to obtain equitable relief in the form of specific performance, a temporary restraining order, a temporary or permanent injunction or any other equitable remedy that may then be available.

8.12 **Expenses**. If any action at law or in equity is necessary to enforce or interpret the terms of this Agreement, the prevailing party shall be entitled to reasonable

attorneys' fees, costs and necessary disbursements in addition to any other relief to which such party may be entitled.

8.13 **Amendments and Waivers**. Any term of this Agreement may be amended and the observance of any term of this Agreement may be waived (either generally or in a particular instance and either retroactively or prospectively), only with the written consent of Shareholders holding in excess of fifty percent (50%) of the Shares of the Company (on an as-converted basis) and in excess of fifty percent (50%) of the Series C Shares, Series C-1 Shares, Series C-2 Shares and Series D Shares (collectively on an as-converted basis). Notwithstanding the foregoing, (i) no provision may be waived or amended if such amendment would adversely, and disproportionately affect (determined after considering and taking into account the relative rights, obligations and preferences of each of the classes and series of Company Securities as compared to each other) the rights or obligations of the holders of the Common Shares, Series A Shares, Series B Shares or Series D Shares without the written consent of the holders of at least a majority of the Common Shares, Series A Shares, Series B Shares or Series D Shares, as the case may be (it being understood that and acknowledged that an increase in the authorized capital stock of the Company (including the authorization and issuance securities senior to existing preferred stock) shall not in and of itself be deemed to be and adverse or disproportionate amendment or alteration within the meaning of this Section 8.13), (ii) Sections 3.1, 3.2, 3.3, 4.5, 5.1, 8.1, and 8.10 may not be amended or waived with respect to the Fidelity Investors without the prior written consent of the Fidelity Investors, (iii) Section 3.4 cannot be waived with respect to the rights of the holders of Series D Shares without the consent of the Shareholders holding in excess of fifty percent (50%) of the Series D Shares unless the holders of the Series D Shares are nonetheless permitted to purchase their relative portion of the applicable issuance of Company Securities; and (iv) Exhibits A, B and C hereto may be amended by the Company from time to time in accordance with Section 8.14 to add information regarding additional Investors, Existing Shareholders and/or Management Shareholders, as applicable, without the consent of the other parties hereto.

8.14 **Additional Shareholders**. Persons or entities that, after the date hereof, (i) purchase Shares at a subsequent closing under the Subscription Agreement, (ii) otherwise acquire Shares of the Company or (iii) are transferred Shares from a Shareholder after the date hereof in accordance with this Agreement, the Charter and the Bylaws of the Company, shall become parties to this Agreement by executing and delivering a Joinder Agreement substantially in the form of Exhibit E hereto, whereupon they shall be deemed (x) an "Investor" if they purchased Shares at a subsequent closing under the Subscription Agreement or (y) an "Existing Shareholder", except in the case of persons who are employees or members of management of the Company (or any other Persons that acquire Shares pursuant to grants made under the Incentive Plan), who shall be deemed "Management Shareholders", in each case, for all purposes of this Agreement, and such Investors, Existing Shareholders and Management Shareholders agree that delivery of such executed signature page by such transferee shall be a condition of such

transfer. The Company shall cause Exhibit A, Exhibit B or Exhibit C, as the case may be, to be updated to reflect the name of such Investor, Existing Shareholder or Management Shareholder promptly following such execution of the Joinder Agreement pursuant to this Section 8.14.

8.15 **Severability**. If one or more provisions of this Agreement are held to be unenforceable under applicable law, such provision shall be excluded from this Agreement, and the balance of the Agreement shall be interpreted as if such provision were so excluded, and shall be enforceable in accordance with its terms.

8.16 **Consent of Spouse**. If any individual Shareholder is married on the date of this Agreement and is a resident of Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, Washington, or Wisconsin, or the Commonwealth of Puerto Rico, such Shareholder's spouse shall execute and deliver to the Company a consent of spouse in the form of Exhibit F hereto ("Consent of Spouse"), effective on the date hereof. Notwithstanding the execution and delivery thereof, such consent shall not be deemed to confer or convey to the spouse any rights in such Shareholder's Company Securities that do not otherwise exist by operation of law or the agreement of the parties. If any Shareholder should marry or remarry subsequent to the date of this Agreement, such Shareholder shall within thirty (30) days thereafter obtain his/her new spouse's acknowledgement of and consent to the existence and binding effect of all restrictions contained in this Agreement by causing such spouse to execute and deliver a Consent of Spouse acknowledging the restrictions and obligations contained in this Agreement and agreeing and consenting to the same.

8.17 **Entire Agreement**. This Agreement and the documents referred to herein constitute the entire agreement among the Parties relating to the subject matter hereof, and supercede in their entirety any and all prior and/or contemporaneous agreements, understandings or representations relating to the subject matter hereof, whether written or oral. No Party shall be liable or bound to any other Party in any manner by any warranties, representations, or covenants except as specifically set forth herein or therein.

* * *

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Shareholders' Agreement as of the date first above written.

OPTINOSE, INC.

By: /s/ Peter Miller
Name: Peter Miller
Title: Chief Executive Officer

SHAREHOLDERS' SIGNATURE PAGE

TO SHAREHOLDERS' AGREEMENT OF OPTINOSE, INC.

INVICTUM AS

By: /s/ Trond Holland
Name: Trond Holland
Title: CEO

Address:

INSPIRE AS

By: /s/ Jan-Olaf Willums
Name: Jan-Olaf Willums
Title: CEO

Address:

ENTREPRENEURS' FUND GENERAL PARTNER LIMITED,
in its capacity as general partner of Entrepreneurs' Fund LP

By: /s/ Colin Dow
Name: Colin Dow
Title: Director

By: /s/ Paul Bradshaw
Name: Paul Bradshaw
Title: Director

Address:

AVISTA CAPITAL PARTNERS II, LP

By: Avista Capital Partners GP II, LLC, as general partner

By: /s/ Ben Silbert
Name: Ben Silbert
Title: General Counsel

Address:

AVISTA CAPITAL PARTNERS (OFFSHORE) II, LP

By: Avista Capital Partners GP II, LLC, as general partner

By: /s/ Ben Silbert
Name: Ben Silbert
Title: General Counsel

Address:

AVISTA CAPITAL PARTNERS (OFFSHORE) II-A, LP

By: Avista Capital Partners GP II, LLC, as general partner

By: /s/ Ben Silbert
Name: Ben Silbert
Title: General Counsel
Address:

LARRY PICKERING

Signed: /s/ Larry Pickering
Address:

PATRICK O'NEILL

Signed: /s/ Patrick O'Neill
Address:

TKWD VENTURES LLC

By: WFD Ventures LLC, its Manager

By: /s/ William F. Doyle
Name: William F. Doyle
Title: Manager
Address:

WILLIAM F. DOYLE

By: /s/ William F. Doyle
Name: William F. Doyle
Title: Manager
Address:

ROBERT JUNEJA

Signed: /s/ Robert Juneja
Address:

GWYNETH M. KETTERER

Signed: /s/ Gwyneth M. Ketterer
Address:

RICHARD L. PERKAL

Signed: /s/ Richard L. Perkal
Address:

DAVID E. KING

Signed: /s/ David E. King
Address:

PAUL STEVEN LATTANZIO

Signed: /s/ Paul Steven Lattanzio

Address:

JOHN DAVID HOWARD

Signed: /s/ John David Howard

Address:

BODIL M. ARLANDER

Signed: /s/ Bodil M. Arlander

Address:

PETER MILLER

Signed: /s/ Peter Miller

Address:

RAMY MAHMOUD

Signed: /s/ Ramy Mahmoud

Address:

FRANK CLOSURDO

Signed: /s/ Frank Closurdo

Address:

CARTER GRIFFIN

Signed: /s/ Carter Griffin

Address:

MICHELE JANIS

Signed: /s/ Michele Janis

Address:

ROBERT USELLER

Signed: /s/ Robert Useller

Address:

JAMES T. LENEHAN

Signed: /s/ James T. Lenehan

Address:

FRANK LEONARD

Signed: /s/ Frank Leonard

Address:

TERRANCE TERIFAY

Signed: /s/ Terrance Terifay

Address:

BAKELITTFABRIKKEN HOLDING AS

By: /s/ Jan Otto Ringdal
Name: Jan Otto Ringdal
Title: Chairman

Address:

HIBAS HOLDING AS

By: /s/ Erik Ingeberg
Name: Erik Ingeberg
Title: Chairman

Address:

IKOS INVEST AS

By: /s/ Per Gisle Djupesland
Name: Per Gisle Djupesland
Title: Chairman

By: /s/ Helena Kyttari Djupesland
Name: Helena Kyttari Djupesland
Title: Board Member

Address:

IKOS SUBSIDIARY AS

By: /s/ Per Gisle Djupesland
Name: Per Gisle Djupesland
Title: Chairman

By: /s/ Helena Kyttari Djupesland
Name: Helena Kyttari Djupesland
Title: Board Member

Address:

KIRKEVEIEN 98 I AS

By: /s/ Jan Otto Ringdal
Name: Jan Otto Ringdal
Title: Chairman

Address:

FIDELITY MT. VERNON STREET TRUST: FIDELITY SERIES GROWTH COMPANY FUND

By: /s/ Jeffrey Christian
Name: Jeffrey Christian
Title: Authorized Signatory

FIDELITY GROWTH COMPANY COMMINGLED POOL

By: Fidelity Management & Trust Co.

By: /s/ Jeffrey Christian

Name: Jeffrey Christian
Title: Authorized Signatory

FIDELITY MT. VERNON STREET TRUST: FIDELITY GROWTH COMPANY FUND

By: /s/ Jeffrey Christian
Name: Jeffrey Christian
Title: Authorized Signatory

FIDELITY OTC COMMINGLED POOL

By: Fidelity Management & Trust Co.

By: /s/ Jeffrey Christian
Name: Jeffrey Christian
Title: Authorized Signatory

FIDELITY SECURITIES FUND: FIDELITY OTC PORTFOLIO

By: /s/ Jeffrey Christian
Name: Jeffrey Christian
Title: Authorized Signatory

Exhibit A

Fidelity Investors

Investors	Address
Fidelity Mt. Vernon Street Trust: Fidelity Series Growth Company Fund	State Street Bank & Trust PO Box 5756 Boston, Massachusetts 02206 Attn: WAVELENGTH + CO Fidelity Mt. Vernon Street Trust: Fidelity Series Growth Company Fund Email: SSBCORPACTIONS@StateStreet.com Fax number: 617-988-9110
Fidelity Growth Company Commingled Pool	Brown Brothers Harriman & Co. Harborside Financial Center 1150 Plaza Five Jersey City NJ 07311 Attn: Michael Lerman 15th Floor Corporate Actions Email: michael.lerman@bbh.com Fax number: 617 772-2418
Fidelity Mt. Vernon Street Trust: Fidelity Growth Company Fund	BNY Mellon Attn: Stacey Wolfe 525 William Penn Place Rm 0400 Pittsburgh, PA 15259 Email: FidelityCorporateEvents@bnymellon.com Fax number: 412-236-1012
Fidelity OTC Commingled Pool	Brown Brothers Harriman & Co. Harborside Financial Center 1150 Plaza Five Jersey City NJ 07311 Attn: Michael Lerman 15th Floor Corporate Actions Email: michael.lerman@bbh.com Fax number: 617 772-2418

Fidelity Securities Fund: Fidelity OTC Portfolio	The Northern Trust Company Attn: Trade Securities Processing, C-1N 801 South Canal Street Chicago, IL 60607 Fidelity Securities Fund: Fidelity OTC Portfolio

	Reference Account # F68304 Email: NTINQUIRY@NTRS.COM Fax number: 312-557-5417 With a copy (which shall not constitute notice) to: Ropes & Gray LLP Prudential Tower 800 Boylston Street Boston, MA 02199 Attention: Joel F. Freedman Facsimile: 617-235-0375

Avista Investors

Investors	Address
Avista Capital Partners II, LP	Avista Capital Holdings, LP 65 E. 55th Street, 18th Floor New York, NY 10022
Avista Capital Partners (Offshore) II, LP	Avista Capital Holdings, LP 65 E. 55th Street, 18th Floor New York, NY 10022
Avista Capital Partners (Offshore) II-A, LP	Avista Capital Holdings, LP 65 E. 55th Street, 18th Floor New York, NY 10022

Other Investors

Investors	Address

Exhibit B

Existing Shareholders

Investors	Address
INSPIRE AS	Postbox 301 1323 Høvik, Norway
IKOS SUBSIDIARY AS	Lybekkveien 5 C 0772 Oslo, Norway
IKOS INVEST AS	Lybekkveien 5 C 0772 Oslo, Norway
INVICTUM AS	Suhms Gate 28, N-0362, Oslo, Norway
SCATEC AS	Sommerrogaten 13-15 0255 Oslo, Norway
BAKELITTFABRIKKEN HOLDING AS	Skogryggveien 5, 0781, Oslo, Norway
KIRKEVEIEN 98 I AS	Skogryggveien 5, 0781, Oslo, Norway
HIBAS HOLDING AS	Vøyenenga, 1313, Norway
REBELIJO INVEST AS	C/O Reidar Langmo, Gyssestadkollen 65 1341 Slependen, Norway

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ENTREPRENEURS' FUND GENERAL PARTNER LIMITED	2nd Floor Windward House La Route de la Liberation St Helier, Jersey

	The Channel Islands Fax: +44 1534 754 510 with a copy to: Entrepreneurs' Fund Legal Counsel 4th Floor, Eagle House 108-110 Jermyn Street London SW1Y 6EE United Kingdom
TKWD VENTURES LLC	WFD Ventures LLC 1500 Broadway, 29th Floor, New York, NY 10036 Facsimile: (212) 767-7575 Attention: William F. Doyle

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Exhibit C

Management Shareholders

PETER MILLER

RAMY MAHMOUD

MICHELE JANIS

ROBERT USELLER

Exhibit D

Shareholdings

See attached.

Exhibit E

Joinder Agreement

This Joinder Agreement ("**Joinder Agreement**") is executed by the undersigned (the "**Transferee**") pursuant to the terms of that certain Second Amended and Restated Shareholders' Agreement dated as of March 24, 2017 (the "**Agreement**") by and among OPTINOSE, INC. (the "**Company**") and the parties named therein. Capitalized terms used but not defined herein shall have the respective meanings ascribed to such terms in the Agreement. By the execution of this Joinder Agreement, the Transferee agrees as follows:

(a) **Acknowledgment**. Transferee acknowledges that Transferee is subject to the terms and conditions of the Agreement.

(b) **Agreement**. Transferee (i) agrees that any shares of the Company acquired by Transferee shall be bound by and subject to the terms of the Agreement, and (ii) hereby adopts the Agreement as an Existing Shareholder, or, if the Transferee is a member of management of the Company, as a Management Shareholder, with the same force and effect as if Transferee were originally a party thereto.

(c) **Notice**. Any notice required or permitted by the Agreement shall be given to Transferee at the address listed beside Transferee's signature below.

EXECUTED AND DATED this day of , 20

TRANSFEREE:

By: _____
[Name]
[Title]
Address:

Exhibit F

CONSENT OF SPOUSE

I, [ ], spouse of [ ], acknowledge that I have read the Second Amended and Restated Shareholders' Agreement, dated as of March 24, 2017, to which this Consent is attached as Exhibit F (the "Agreement"), and that I know the contents of the Agreement. I am aware that the Agreement contains provisions regarding certain rights to certain other holders of Company Securities of the Company upon a proposed Transfer of Company Securities which my spouse may own including any interest I might have therein.

I hereby agree that my interest, if any, in any Company Securities subject to the Agreement shall be irrevocably bound by the Agreement and further understand and agree that any community property interest I may have in such Company Securities shall be similarly bound by the Agreement.

I am aware that the legal, financial and related matters contained in the Agreement are complex and that I am free to seek independent professional guidance or counsel with respect to this Consent. I have either sought such guidance or counsel or determined after reviewing the Agreement carefully that I will waive such right.

Dated as of the [ ] day of [, 20].

Signature

Print Name

SCHEDULE 4.11(a)

Rule 506(d)

(d) "*Bad Actor" disqualification.* (1) No exemption under this section shall be available for a sale of securities if the issuer; any predecessor of the issuer; any affiliated issuer; any director, executive officer, other officer participating in the offering, general partner or managing member of the issuer; any beneficial owner of 20% or more of the issuer's outstanding voting equity securities, calculated on the basis of voting power; any promoter connected with the issuer in any capacity at the time of such sale; any investment manager of an issuer that is a pooled investment fund; any person that has been or will be paid (directly or indirectly) remuneration for solicitation of purchasers in connection with such sale of securities; any general partner or managing member of any such investment manager or solicitor; or any director, executive officer or other officer participating in the offering of any such investment manager or solicitor or general partner or managing member of such investment manager or solicitor:

(i) Has been convicted, within ten years before such sale (or five years, in the case of issuers, their predecessors and affiliated issuers), of any felony or misdemeanor:

(A) In connection with the purchase or sale of any security;

(B) Involving the making of any false filing with the Securities and Exchange Commission (the "Commission"); or

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(C) Arising out of the conduct of the business of an underwriter, broker, dealer, municipal securities dealer, investment adviser or paid solicitor of purchasers of securities;

(ii) Is subject to any order, judgment or decree of any court of competent jurisdiction, entered within five years before such sale, that, at the time of such sale, restrains or enjoins such person from engaging or continuing to engage in any conduct or practice:

(A) In connection with the purchase or sale of any security;

(B) Involving the making of any false filing with the Commission; or

(C) Arising out of the conduct of the business of an underwriter, broker, dealer, municipal securities dealer, investment adviser or paid solicitor of purchasers of securities;

(iii) Is subject to a final order of a state securities commission (or an agency or officer of a state performing like functions); a state authority that supervises or examines banks, savings associations, or credit unions; a state insurance commission (or an agency or officer of a state performing like functions); an appropriate federal banking agency; the U.S. Commodity Futures Trading Commission; or the National Credit Union Administration that:

(A) At the time of such sale, bars the person from:

(1) Association with an entity regulated by such commission, authority, agency, or officer;

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(2) Engaging in the business of securities, insurance or banking; or

(3) Engaging in savings association or credit union activities; or

(B) Constitutes a final order based on a violation of any law or regulation that prohibits fraudulent, manipulative, or deceptive conduct entered within ten years before such sale;

(iv) Is subject to an order of the Commission entered pursuant to section 15(b) or 15B(c) of the Securities Exchange Act of 1934 (15 U.S.C. 78*o*(b) or 78*o*-4(c)) or section 203(e) or (f) of the Investment Advisers Act of 1940 (15 U.S.C. 80b-3(e) or (f)) that, at the time of such sale:

(A) Suspends or revokes such person's registration as a broker, dealer, municipal securities dealer or investment adviser;

(B) Places limitations on the activities, functions or operations of such person; or

(C) Bars such person from being associated with any entity or from participating in the offering of any penny stock;

(v) Is subject to any order of the Commission entered within five years before such sale that, at the time of such sale, orders the person to cease and desist from committing or causing a violation or future violation of:

(A) Any scienter-based anti-fraud provision of the federal securities laws, including without limitation section 17(a)(1) of the Securities Act of 1933 (15 U.S.C. 77q(a)(1)), section 10(b) of the Securities Exchange Act of 1934 (15 U.S.C. 78j(b)) and 17 CFR 240.10b-5, section 15(c)(1) of the Securities Exchange Act of 1934 (15 U.S.C. 78*o*(c)(1)) and section 206(1) of the

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Investment Advisers Act of 1940 (15 U.S.C. 80b-6(1)), or any other rule or regulation thereunder; or

(B) Section 5 of the Securities Act of 1933 (15 U.S.C. 77e).

(vi) Is suspended or expelled from membership in, or suspended or barred from association with a member of, a registered national securities exchange or a registered national or affiliated securities association for any act or omission to act constituting conduct inconsistent with just and equitable principles of trade;

(vii) Has filed (as a registrant or issuer), or was or was named as an underwriter in, any registration statement or Regulation A offering statement filed with the Commission that, within five years before such sale, was the subject of a refusal order, stop order, or order suspending the Regulation A exemption, or is, at the time of such sale, the subject of an investigation or proceeding to determine whether a stop order or suspension order should be issued; or

(viii) Is subject to a United States Postal Service false representation order entered within five years before such sale, or is, at the time of such sale, subject to a temporary restraining order or preliminary injunction with respect to conduct alleged by the United States Postal Service to constitute a scheme or device for obtaining money or property through the mail by means of false representations.

(2) Paragraph (d)(1) of this section shall not apply:

(i) With respect to any conviction, order, judgment, decree, suspension, expulsion or bar that occurred or was issued before September 23, 2013;

(ii) Upon a showing of good cause and without prejudice to any other action by the Commission, if the Commission determines that it is not necessary under the circumstances that an exemption be denied;

(iii) If, before the relevant sale, the court or regulatory authority that entered the relevant order, judgment or decree advises in writing (whether contained in the relevant judgment, order or decree or separately to the Commission or its staff) that disqualification under paragraph (d)(1) of this section should not arise as a consequence of such order, judgment or decree; or

(iv) If the issuer establishes that it did not know and, in the exercise of reasonable care, could not have known that a disqualification existed under paragraph (d)(1) of this section.

Instruction to paragraph (d)(2)(iv). An issuer will not be able to establish that it has exercised reasonable care unless it has made, in light of the circumstances, factual inquiry into whether any disqualifications exist. The nature and scope of the factual inquiry will vary based on the facts and circumstances concerning, among other things, the issuer and the other offering participants.

(3) For purposes of paragraph (d)(1) of this section, events relating to any affiliated issuer that occurred before the affiliation arose will be not considered disqualifying if the affiliated entity is not:

(i) In control of the issuer; or

(ii) Under common control with the issuer by a third party that was in control of the affiliated entity at the time of such events.

THE WARRANT REPRESENTED BY THIS WARRANT CERTIFICATE AND THE COMMON STOCK OR OTHER SECURITIES ISSUABLE UPON THE EXERCISE OF THIS WARRANT HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "***ACT***"), OR ANY STATE SECURITIES LAWS AND NEITHER THIS WARRANT NOR THE COMMON STOCK OR OTHER SECURITIES ISSUABLE UPON THE EXERCISE OF THIS WARRANT NOR ANY INTEREST THEREIN MAY BE TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR AN EXEMPTION THEREFROM UNDER THE ACT AND THE RULES AND REGULATIONS THEREUNDER.

Warrant No. [ ] , 20

WARRANT

OPTINOSE, INC.

THIS IS TO CERTIFY THAT for value received, [ ] (or any permitted transferee hereunder, the "***Holder***"), is entitled, subject to the terms and conditions set forth below, to purchase from OptiNose, Inc., a Delaware corporation (the "***Company***"), [ ] shares of Common Stock (as defined below), at a price per share equal to $23.560625 per share, as adjusted from time to time pursuant to Section 3 below (the "***Warrant Price***").

Pursuant to that certain Exchange Agreement dated June 7, 2010, by and among the Company, the Holder and the other parties thereto, this Warrant is issued by the Company to the Holder in exchange for all of the Holder's rights to those certain options to subscribe for shares of Common Stock of OptiNose AS obtained by the Holder in connection with that certain Subscription Agreement dated as of December 20, 2005, by and among OptiNose AS, the Holder and the parties thereto (the "***Option Rights***"). Upon execution of this Warrant, the Holder irrevocably waives any and all rights in or to the Option Rights, and the parties acknowledge and agree that the Option Rights are henceforth void and shall be of no further force or effect as of the date hereof.

1. Certain Definitions. Capitalized terms used but not defined herein shall have the meanings set forth in the Shareholders' Agreement (as defined below). In addition, the following terms shall have the meanings set forth below:

(a) The term "***Exercise Period***" means the period commencing on the date of this Warrant and ending on November 1, 2020.

(b) The term "***Shareholders' Agreement***" means the Company's Shareholders' Agreement, dated as of June 7, 2010, as amended from time to time.

(c) The term "***Warrant Shares***" means shares of the Company's Common Stock, par value $0.001 per share ("***Common Stock***"), or any securities into which shares of Common Stock are converted or for which they are exchanged.

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2. Manner of Exercise.

(a) This warrant (this "***Warrant***") shall be exercisable in accordance with this Section 2. The Holder may from time-to-time on any business day during the Exercise Period exercise this Warrant, for all or any part of the Warrant Shares purchasable at such time hereunder, by delivering to the Company at its principal office (i) a written notice of the Holder's election to exercise this Warrant (an "***Exercise Notice***"), which Exercise Notice shall be irrevocable and shall specify the number of Warrant Shares to be purchased, (ii) payment of the aggregate Warrant Price for the applicable number of Warrant Shares to be purchased, (iii) a joinder to the Company's Shareholders' Agreement, if necessary, executed by the Holder, its duly authorized agent, or such person to whom Warrant Shares shall be issued, and (iv) this Warrant (the date on which the foregoing items are delivered to the Company being hereinafter referred to as the "***Exercise Date***"). Such Exercise Notice shall be substantially in the form of Annex A hereto, duly executed by the Holder or its duly authorized agent.

(b) Upon receipt of the items specified in Section 2(a), the Company shall, as promptly as practicable, and in any event within ten (10) business days thereafter, execute (or cause to be executed) and deliver (or cause to be delivered) to the Holder a certificate or certificates representing the aggregate whole number of Warrant Shares issuable upon such exercise, together with cash in lieu of any fraction of a Warrant Share so issuable, as hereafter provided. This Warrant shall be deemed to have been exercised and such certificate or certificates shall be deemed to have been issued, and the Holder shall be deemed to have become a Holder of record of such Warrant Shares for all purposes, as of the Exercise Date.

(c) Payment of the aggregate Warrant Price for the applicable number of Warrant Shares to be purchased shall be made, at the election of the Holder, (i) in cash in the amount of the aggregate Warrant Price then in effect for the number of Warrant Shares issuable upon such exercise, (ii) by surrender to the Company of an unexercised portion of this Warrant exercisable for a number of Warrant Shares having an aggregate fair market value (as determined in good faith by the Company's Board of Directors (the "***Board***"), and approved by the affirmative vote or consent of the Director or Directors designated by the holders of the Series B Convertible Preferred Stock of the Company, such approval not to be unreasonably withheld, delayed or conditioned (the "***Series B Approval***") (it being understood that if the Board and the Director or Directors designated by the holders of the Series B Convertible Preferred Stock are not able to agree on such fair market value, payment pursuant to this Section 2(c)(ii) shall not be available) , net of the applicable aggregate Warrant Price payable therefor, equal to the aggregate Warrant Price then in effect for the number of Warrant Shares to be issued, or (iii) by a combination of the aforementioned methods of payment. Any cash payment shall be made by wire transfer or delivery of a certified or official bank check.

(d) If this Warrant is exercised in part, the Company shall, at the time of delivery of the certificate or certificates representing the Warrant Shares being issued, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant. Such new Warrant shall in all other respects be identical to this Warrant.

(e) The Company shall pay any and all issue and other taxes (other than income taxes) that may be payable in respect of the issuance of this Warrant or any issuance or delivery of Warrant Shares on exercise of this Warrant; provided, however, that the Company

shall not be obligated to pay any taxes imposed by law upon the Holder (which taxes shall be paid by the Holder) or transfer taxes resulting from any transfer requested by the Holder of record of this Warrant in connection with any such exercise.

(f) The Company shall at all times until the expiration or earlier exercise in full of this Warrant reserve and keep available out of its authorized but unissued Warrant Shares, solely for the purpose of effecting the exercise of this Warrant, such number of its Warrant Shares as shall be sufficient to effect such exercise of this Warrant for the maximum number of Warrant Shares issuable upon exercise of this Warrant; and if, at any time prior to the expiration or earlier exercise in full of this Warrant, the number of authorized but unissued Warrant Shares shall not be sufficient to effect such exercise of this Warrant for the maximum number of Warrant Shares then issuable upon exercise of this Warrant, the Company shall take such action as may be necessary to increase its authorized but unissued Warrant Shares to such number of Warrant Shares as shall be sufficient for such purpose, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to the Company's Certificate of Incorporation (as in effect from time to time, the "***Charter***"). The Company shall not at any time close its Warrant Share transfer books in a manner that prevents the timely exercise of this Warrant.

(g) No fractional Warrant Shares shall be issued upon the exercise of this Warrant. All Warrant Shares (including fractions thereof) issuable upon an exercise of this Warrant shall be aggregated for purposes of determining whether the exercise would result in the issuance of any fractional Warrant Shares. If, after the aforementioned aggregation, the exercise would result in the issuance of a fraction of a Warrant Share, the Company shall, in lieu of issuing any fractional Warrant Share, pay the Holder a sum of cash equal to the fair value of such fraction on the date of exercise (as determined in good faith by the Board, including the Series B Approval).

3. Anti-Dilution Provisions.

(a) Adjustment. In the event that the Company shall at any time during the Exercise Period (i) subdivide the outstanding Warrant Shares into a greater number of Warrant Shares, (ii) declare and pay a dividend on the outstanding Warrant Shares payable in Warrant Shares, (iii) propose to effect any reorganization or reclassification of the capital of the Company or any consolidation or merger of the Company with or into another corporation or other entity or any sale, lease or conveyance of all or substantially all of the assets of the Company, or (iv) otherwise change the security that the holders of any Warrant Shares are entitled to receive, then the Company shall make appropriate adjustments to the Warrant Price and the number of Warrant Shares issuable upon the exercise of this Warrant to take into effect what holders of the applicable Warrant Shares held before such event and what they held after such event. Upon the occurrence of an event described in clause (iii) or (iv) of this Section 3(a), the Holder shall be entitled thereafter to receive upon exercise of this Warrant the kind and amount of Warrant Shares or other securities or assets that the Holder would have been entitled to receive after the occurrence of such event had this Warrant been exercised immediately prior to such event; and in any such case, appropriate provision shall be made with respect to the rights and interests of the Holder to the end that the provisions of this Warrant (including, without limitation, provisions with respect to changes in and adjustments of the Warrant Price) shall

thereafter be applicable, as nearly as may be, in relation to any Warrant Shares or other securities or assets, thereafter deliverable upon the exercise of this Warrant. The Company shall not effect any of the transactions described in clause (iii) or (iv) of this Section 3(a) unless, prior to the consummation thereof, each person (other than the Company) that may be required to deliver any cash, securities or other assets upon the exercise of this Warrant as provided in this Warrant shall assume, by written instrument delivered to, and reasonably satisfactory to, the Holder, (x) the obligations of the Company under this Warrant (and if the Company shall survive the consummation of any such transaction, such assumption shall be in addition to, and shall not release the Company from, any continuing obligations of the Company under this Warrant) and (y) the obligation to deliver to such Holder such cash, Warrant Shares, securities or other assets as such Holder may be entitled to receive in accordance with the provisions of this Section 3. The provisions of this Section 3 shall similarly apply to successive transactions.

(b) No Avoidance. The Company shall not, by amendment of its Charter or other organizational documents, or through any reorganization, transfer of assets, consolidation, merger, dissolution, sale of securities or other voluntary action, avoid or seek to avoid the observance or performance of any of the terms to be observed or performed under this Section 3 by the Company, but shall at all times in good faith assist in the carrying out of all provisions of this Section 3. If any event occurs as to which the other provisions of this Section 3 are not strictly applicable or, if strictly applicable, would not fairly protect the express and specific rights of the Holder in accordance with the essential intent and principles of this Warrant, then the Board shall make an adjustment in the provisions of this Warrant, in accordance with such essential intent and principles, so as to protect such rights.

4. Replacement of Warrant. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of any such loss, theft or destruction of this Warrant, on delivery of an indemnity agreement reasonably satisfactory to the Company or, in the case of any such mutilation, on surrender and cancellation of this Warrant, the Company at its expense shall execute and deliver, in lieu thereof, a new Warrant of like tenor.

5. Remedies. The Company stipulates that the remedies at law of the Holder in the event of any default or threatened default by the Company in the performance of or compliance with any of the terms of this Warrant are not and will not be adequate, and that such terms may be specifically enforced by specific performance of any agreement contained in this Warrant or by an injunction against a violation of any of the terms of this Warrant or otherwise.

6. Negotiability, Etc. This Warrant is issued upon the following terms, all of which the Holder, by the taking hereof, consents and agrees:

(a) Subject to Section 7(c), the Holder shall be entitled to Transfer this Warrant, in whole or in part, without the prior written consent of the Company if and only if such Transfer is in accordance with and permitted under the Shareholders' Agreement.

(b) The Holder shall not be entitled to vote or to receive dividends, or to be deemed the holder of Warrant Shares that may at any time be issuable upon exercise of this Warrant for any purpose whatsoever, nor shall anything contained in this Warrant be construed

to confer upon the Holder any of the rights of a stockholder of the Company or any right to vote for the election of members of the Board or upon any matter submitted to stockholders at any meeting thereof, or to give or withhold consent to any Company action (whether upon any recapitalization, issuance or reclassification of securities, consolidation, merger or conveyance or otherwise), or to receive notice of meetings, or to receive dividends or subscription rights, until the Holder shall have exercised this Warrant and been issued Warrant Shares in accordance with the provisions of this Warrant.

(c) Neither this Warrant nor any Warrant Shares purchased pursuant to this Warrant have been registered under the Act and applicable state securities laws. Therefore, the transfer or exchange of this Warrant or such Warrant Shares may be made only in a transaction permitted under the Act and applicable state securities laws or pursuant to an exemption therefrom. Prior to registration, the certificates evidencing the Warrant Shares issued on the exercise of this Warrant shall bear a legend to the effect that the Warrant Shares evidenced by such certificates have not been registered under the Act and applicable state securities laws.

(d) Until this Warrant is transferred in accordance with the terms of this Warrant, the Company may treat the registered Holder of this Warrant as the absolute owner of this Warrant for all purposes, notwithstanding any notice to the contrary.

7. Notices, Etc. All notices, claims, demands and other communications from the Company to the Holder shall be in writing and shall be deemed given if delivered personally or by telex or telecopier, one business day after being sent by major overnight courier, or four days after being mailed by registered or certified mail (postage prepaid, return receipt requested) to the Holder at such address as shall have been furnished to the Company in writing by such Holder.

8. Amendments. This Warrant and any term of this Warrant may be changed, waived, discharged or terminated only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

9. Governing Law. This Warrant shall be governed by, construed and enforced in accordance with the internal laws of the State of Delaware.

10. Descriptive Headings. The headings contained in this Warrant are for convenience of reference only and shall not affect the meaning or interpretation of this Warrant.

11. Severability. The invalidity or unenforceability of any provision of this Warrant shall in no way affect the validity or enforceability of any other provision of this Warrant.

[*Signature page follows*]

IN WITNESS WHEREOF, the undersigned has executed this Warrant as of the date first written above.

OPTINOSE, INC.

By: _____
Name:
Title:

Accepted:

[ ]

By: _____
Name:
Title:

Annex A to Warrant

Form of Exercise Notice

(*To be executed if the Holder desires to exercise, in whole or in part, the Warrant evidenced by the attached Warrant Certificate.*)

OptiNose, Inc.
[*Address*]

The undersigned hereby (1) irrevocably elects to exercise [in whole] [in part] the Warrant represented by Warrant Certificate No. [ ] (the "***Warrant***") to purchase [ ] Warrant Shares issuable upon the exercise of the Warrant, (2) makes payment in full of the aggregate Warrant Price for such Warrant Shares [by wire transfer of immediately available funds made in connection with the delivery hereof] [by enclosure of a certified or bank cashier's check therefor] [and/or] [by surrendering a portion of the Warrant for application to the aggregate Warrant Price payable in connection with such exercise in accordance with the terms of the Warrant], and (3) requests that [a] certificate[s] representing the Warrant Shares be issued in the name of and delivered to:

_____

_____

_____

(*Please print name and address*)

If such number of Warrant Shares is less than all the Warrant Shares issuable upon the full exercise of Warrant (as reduced by any portion of the Warrant surrendered as payment for the aggregate Warrant Price in connection with an exercise of the Warrant), a new Warrant Certificate to purchase the balance of such Warrant Shares shall be registered in the name of and delivered to:

_____

_____

_____

(*Please print name and address*)

DATED: _____

Signature: _____

Name: _____

Title: _____

EMPLOYMENT AGREEMENT

OPTINOSE, INC.
a Delaware Corporation
c/o TKWD Ventures LLC
152 West 57th Street, 10th Floor
New York, NY 10019

PETER K. MILLER ("Manager")
237 Orchard Way
Wayne, PA 19087

As of May 27, 2010

BACKGROUND: In connection with the proposed Series C Convertible Preferred Stock Financing ("**Series C Financing**") transaction to be consummated by and among Optinose, Inc. (the "**Parent Company**"), OptiNose AS (the "**Operating Company**"), Avista Capital Partners II, L.P. and its affiliated investment funds (collectively, "Avista"), and certain other parties, the Company engages Manager and Manager agrees to be engaged by the Parent Company, all upon the terms and conditions set forth herein (this "**Agreement**"). The Parent Company and all of its current and future direct and indirect subsidiaries, including without limitation the Operating Company, shall be referred to herein as the "**OptiNose Companies**."

NOW, THEREFORE, incorporating the foregoing herein, in consideration of the mutual agreements contained herein and other good and valuable consideration, the parties hereto, intending to be legally bound, agree as follows:

1. ***Term and Renewal*.** The Parent Company hereby engages, effective at the Initial Closing of the Series C Financing (as defined in the Subscription Agreement related thereto), Manager and Manager hereby accepts such engagement with the Parent Company as the Chief Executive Officer and President of the Parent Company and as Co-Managing Director (subject to Norwegian governance rules) of the Operating Company, subject to all of the terms and conditions of this Agreement, for a period of three years from the date of such Initial Closing unless sooner terminated in accordance with the other provisions hereof (the "**Term**"). This Agreement shall be automatically renewed as of the last day of the Term, for successive one-year terms unless, not later than 90 days prior to the end of the Term, or any renewal period, as the case may be, the Parent Company and the Operating Company provide Manager with written notice of their intent not to renew the Agreement.

2. ***Duties and Location*.** Manager's responsibilities shall include but not be limited to: serving as the Chief Executive Officer and President of the Parent Company and the Operating Company. Manager shall be subject to the direction and control of the Board of Directors of the Parent Company (the "**Board**"). Manager also shall perform such additional duties and functions for and on behalf of OptiNose Companies, consistent with his position and experience, as are reasonably requested of him from time to time by the Board. Manager shall

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be located at the Operating Company's offices in the Philadelphia, Pennsylvania metropolitan area. Manager shall devote his full business time and attention in order to further the business and interests of the OptiNose Companies; provided, however, that Manager shall have the right to: (a) act as a strategic consultant for the Walgreen Company and its affiliates, (b) serve on the Board of Directors of the Internet Capital Group, and (c) devote a reasonable amount of time either during or after business hours to Outside Activities (as defined below), so long as activities (a), (b) and (c) do not prohibit or interfere with the performance by Manager of his duties under this Agreement, conflict with the business of the OptiNose Companies or violate any of the provisions of Section 5 hereof. For purposes hereof, "**Outside Activities**" shall mean the oversight of passive investments and activities involving professional, charitable, education, religious and other philanthropic organizations (including membership on other boards of such for profit and non-profit organizations), in each case as reasonably approved in advance by the Board.

3. ***Compensation and Expenses*.**

3.1 ***Base Salary*.** The OptiNose Companies will pay Manager a base salary ("**Base Salary**") at the rate of $400,000 per year, paid in accordance with the usual payroll practices of the Parent Company. Manager's Base Salary may be reviewed annually by the Board (or a committee thereof) for potential increases each successive year of the Term or any renewal period, such increases to be in the sole discretion of the Board.

3.2 ***Discretionary Bonus.*** Manager will be eligible to receive a target cash bonus for the Term of up to $160,000 (constituting 40% of initial Base Salary) ("**Bonus**") due and payable at the end of the Term, provided that Manager continues to be employed by the Optinose Companies at such time. Such Bonus will be subject to Manager's achievement of specific performance goals set by the Board, in its sole discretion, including, without limitation, goals based on the operating results of the OptiNose Companies and/or Manager's individual performance.

3.3 ***Expenses*.** Manager shall be reimbursed by the OptiNose Companies for all ordinary, necessary and reasonable expenses actually incurred by Manager in the course of the performance of services under this Agreement. Manager shall keep an itemized account of such expenses, which shall be submitted to the OptiNose Companies monthly together with original receipts.

3.4 ***Unit Options*.**

3.4.1 ***Option Grant.*** The Parent Company shall grant to Manager pursuant to the Grant Agreement (as defined below) the right to purchase 4.0% (on a fully diluted basis as of the date hereof (after taking into effect the issuance of all of the equity pursuant to the Series C Financing)) of the Common Shares of the Parent Company or an economically equivalent interest under the terms of the 2010 Stock Incentive Plan of the Parent Company, in the form attached hereto as Exhibit 3.4.1(a), as amended from time to time (the "**Plan**") at an exercise price equal to the fair market value of the Common Shares on the date hereof (i.e., the date of grant) (the "**Option Grant**") as determined by a third party valuation to be

commissioned by the Board. As of the completion of the Series C Financing, the capitalization of the Parent Company is as set forth on Schedule 3.4.1(b) attached hereto.

3.4.2 ***Vesting.*** One-eighth of the Option Grant shall vest on the date hereof, and the remaining portions of the Option Grant will vest and become exercisable in two equal portions. The first portion (time vesting) will vest in four equal consecutive installments, with one-fourth vesting on each of the first four anniversaries of the date of grant, provided that Manager is continuously employed by the OptiNose Companies on each such vesting date. The second portion (performance vesting) will vest on achievement of performance criteria established by the Board and as set forth in the Grant Agreement (as defined below), provided that Manager is continuously employed by the OptiNose Companies on each such vesting date. Notwithstanding the foregoing, any unvested portion of the Option Grant will become fully vested and exercisable upon a Change in Control (as more fully set forth in the Plan and the Grant Agreement (as defined below)).

3.4.3 ***Form of Grant.*** The Option Grant will be granted pursuant to and, to the extent not contrary to the terms of this Agreement, will be subject to the terms and conditions imposed under the Plan and a grant agreement in the form attached hereto as Exhibit 3.4.3 (the "**Grant Agreement**"), to be entered into between Manager and the Parent Company which will include, without limitation, provisions relating to limits on transfer, post-termination exercise periods and other provisions as determined by the OptiNose Companies.

3.5 ***Benefits and Fringes.***

3.5.1 ***General.*** You will be entitled to such benefits and fringes, if any, as are generally provided from time to time by the OptiNose Companies to its employees, subject to the satisfaction of any eligibility requirements.

3.5.2 ***Vacation.*** You will also be entitled to 20 business days of annual paid vacation in accordance with the OptiNose Companies' vacation policies in effect from time to time, which may be taken at such times as you elect with due regard to the needs of the OptiNose Companies.

4. ***Termination; Compensation Continuation.***

4.1 ***Termination upon Death.*** If Manager dies, then Manager's employment with the OptiNose Companies shall terminate as of the date of his death, at which time all of Manager's rights to compensation and benefits under Section 3 hereof or otherwise shall immediately terminate, except that Manager's heirs, personal representatives or estate shall be entitled to: (a) any unpaid portion of Manager's compensation set forth in Section 3.1 above for periods before the date of termination; (b) any accrued benefits up to the date of termination; and (c) any benefits that are required to be provided to Manager's dependents after the date of termination under the general provisions of the employee benefit plans in which Manager participated as of the date of his death.

4.2 ***Termination upon Disability.*** "**Disability**" means any physical or mental incapacity, illness or infirmity that prevents or significantly restricts Manager from performing the normal duties of a business executive on a full-time basis. If Manager suffers a Disability and the Disability continues for more than three months, then the OptiNose Companies shall have the right to terminate Manager's employment upon written notice to Manager, at which time all of Manager's rights to compensation and benefits under Section 3.1 of this Agreement or otherwise shall immediately terminate, except that Manager shall be entitled to (a) any unpaid portion of Manager's compensation for periods before the date of termination; (b) any accrued benefits up to the date of termination; and (c) any benefits that are required to be provided after the date of termination under the general provisions of the employee benefit plans in which Manager participated as of the date of termination.

4.3 ***Termination by the OptiNose Companies for Cause.*** The OptiNose Companies may, upon written notice to Manager, immediately terminate Manager's employment for cause. "**Cause**" shall exist upon (a) Manager's breach of any fiduciary duty or material legal or contractual obligation to an OptiNose Company or any of its affiliates (including, without limitation, pursuant to an OptiNose Company or affiliate policy or the restrictive covenants set forth in Section 5 of this Agreement or any other applicable restrictive covenants between the Manager and an OptiNose Company or any of its affiliates), or an OptiNose Company's direct or indirect equity holders, (B) Manager's failure to follow the reasonable instructions of the Board (other than as a result of total or partial incapacity due to physical or mental illness), which breach, if curable, is not cured within 30 days after notice to Manager specifying in reasonable detail the nature of such breach, or, if cured, recurs within 180 business days, (C) Manager's gross negligence, willful misconduct, fraud, insubordination, acts of dishonesty or conflict of interest relating to an OptiNose Company or any of its affiliates or direct or indirect equityholders or (D) Manager's commission of any misdemeanor which has a material impact on the affairs, business or reputation of any OptiNose Company or any of its affiliates or Manager's indictment for, or plea of nolo contendere to, a crime constituting a felony under the laws of the United States or any state thereof. Upon a termination of Manager's employment for Cause, all of Manager's rights to compensation and benefits under Section 3 of this Agreement or otherwise shall immediately terminate, except that Manager shall be entitled to (a) any unpaid portion of Manager's compensation for periods before the date of the first occurrence of the circumstances constituting cause for termination under this provision; (b) any accrued benefits up to such date; and (c) any benefits that are required to be provided after such date under the general provisions of the employee benefit plans in which Manager participated as of the date of termination.

4.4 ***Termination without Cause.*** The OptiNose Companies may, upon written notice to Manager, terminate Manager's employment without Cause. Upon a termination of Manager's employment without Cause, (a) the OptiNose Companies shall continue to pay to Manager, for twelve months after the last day of Manager's employment with the OptiNose Companies, compensation at the rate in effect on the date of termination, and the OptiNose Companies shall continue to provide to Manager, for twelve months after the last day of Manager's employment with the OptiNose Companies, the benefits of the standard group medical, vision and dental plans

maintained or adopted by the OptiNose Companies on substantially the same terms as such benefits are provided to employees during such period. For the avoidance of doubt, the expiration of the Term (or any automatic renewal period pursuant to Section 1) without renewal shall not constitute a termination hereunder (with or without Cause). Payment to Manager of any amounts otherwise due hereunder upon termination shall be conditioned on execution of a general release by Manager in favor of the OptiNose Companies in the form attached hereto as Exhibit 4.4. and the lapse of any revocation period with the release not having been revoked. Such release shall be provided to Manager within 3 days of termination of employment and executed by Manager within 30 days after delivery. Any payments that would have otherwise been made prior to execution, delivery and lapse of any revocation period shall be made in a lump sum at the end of any revocation period.

5. ***Covenants.***

5.1 ***Non-Competition.*** So long as Manager is employed by the OptiNose Companies under this Agreement and for the twelve-month period following the termination or expiration of his employment with the OptiNose Companies for any reason (the "**Restricted Period**"), Manager will not, directly or indirectly, without the prior written consent of the Parent Company, engage in Competition with the Parent Company or the Operating Company (collectively, the "**Employer**"). "Competition" means participating, directly or indirectly, as an individual proprietor, partner, stockholder, officer, employee, director, joint venturer, investor, lender, consultant or in any other capacity whatsoever in any business or venture that competes in any way with the business of developing, manufacturing, licensing, selling or distributing of nasal drug delivery devices or related products (or any rights relating thereto).

5.2 ***Confidentiality***. Manager will not, directly or indirectly, use, make available, sell, disclose or otherwise communicate to any person or entity, other than in the course of his assigned duties hereunder and for the benefit of the Employer, either while employed by the OptiNose Companies hereunder or at any time thereafter, any business and technical information or trade secrets, nonpublic, proprietary or confidential information, knowledge or data relating to the Employer whether the foregoing will have been obtained by Manager during Manager's employment hereunder or otherwise. The foregoing will not apply to information that (i) was known to the public prior to its disclosure to Manager; (ii) becomes generally known to the public or in the Employer's industry subsequent to disclosure to Manager through no wrongful act by Manager or any of Manager's representatives; or (iii) Manager is required to disclose by applicable law, regulation or legal process (provided that Manager provides the OptiNose Companies with prior notice of the contemplated disclosure and cooperate with the OptiNose Companies in seeking a protective order or other appropriate protection of such information).

5.3 ***Non-Solicitation of Customers.*** During the Restricted Period Manager will not, directly or indirectly, solicit or influence, or attempt to solicit or influence, customers of the Employer to purchase goods or services then sold by the Employer from any other person or entity.

5.4 ***Non-Solicitation of Suppliers.*** During the Restricted Period Manager will not, directly or indirectly, solicit or influence, or attempt to solicit or influence, the OptiNose Companies' suppliers to provide goods or services then provided to the Employer to any other person or entity in Competition with the Employer.

5.5 ***Non-Solicitation of Employees.*** Manager recognizes that he will possess confidential information about other employees of the Employer relating to their education, experience, skills, abilities, compensation and benefits, and inter-personal relationships with customers of the Employer. Manager recognizes that the information he possesses and will possess about these other employees is not generally known, is of substantial value to the Employer in developing its business and in securing and retaining customers, and has been and will be acquired by Manager because of his business position with the Employer. Manager, during the Restricted Period and for 12 months thereafter, will not (x) directly or indirectly, individually or on behalf of any other person or entity solicit or recruit any employee of the Employer to leave such employment for the purpose of being employed by, or rendering services to, Manager or any person or entity unaffiliated with the Employer, or (y) convey any such confidential information or trade secrets about other employees of the Employer to any person or entity other than in the course of his assigned duties hereunder and for the benefit of the Employer.

5.6 ***Non-Disparagement.*** Manager will not, nor will he induce others to, Disparage the Employer or any of their past or present officers, directors, employees or products. "**Disparage**" will mean making comments or statements to the press, the Employer's employees or any individual or entity with whom the Employer has a business relationship that would adversely affect in any manner: (i) the conduct of the business of the Employer (including, without limitation, any products or business plans or prospects); or (ii) the business reputation of the Employer, or any of their products, or their past or present officers, directors or employees.

5.7 ***Inventions.***

5.7.1 Manager acknowledges and agrees that all trade secrets, mask works, concepts, drawings, materials, documentation, procedures, diagrams, specifications, models, processes, formulae, source and object codes, data, programs, know-how, designs, techniques, ideas, methods, inventions, discoveries, improvements, work products, developments, or other works of authorship ("**Inventions**"), whether patentable or unpatentable, (x) that relate to his work with the OptiNose Companies, made, developed or conceived by him, solely or jointly with others, or with the use of any of the Optinose Companies' equipment, supplies, facilities or trade secrets or (y) suggested by any work that he performed in connection with the OptiNose Companies, either while performing his duties with the OptiNose Companies or on his own time, but only insofar as the Inventions are related to his work as an employee of the OptiNose Companies (collectively, "**Company Inventions**"), will belong exclusively to the Parent Company or such of the OptiNose Companies the Parent may designate, whether or not patent applications are filed thereon. Manager will keep full and complete written records (the "**Records**"), in the manner prescribed by the OptiNose Companies, of all Company Inventions, and will promptly disclose all Company Inventions completely and in writing to the OptiNose Companies. The Records will be the sole and exclusive property of the

OptiNose Companies, and Manager will surrender them upon the termination of his employment, or upon the OptiNose Companies' request. Manager will assign to the OptiNose Companies the Company Inventions including all rights in and to patents and other intellectual property rights that may issue thereon in any and all countries, whether during or subsequent to the term of this Agreement, together with the right to file, in his name or in the name of the OptiNose Companies (or their designee), applications for patents and equivalent rights (the "**Applications**"). Manager will, at any time during and subsequent to the term of this Agreement, make such applications, sign such papers, take all rightful oaths, and perform all acts as may be requested from time to time by the OptiNose Companies with respect to the Company Inventions and the underlying intellectual property. Manager will also execute assignments to the OptiNose Companies (or their designee) of the Applications, and give the OptiNose Companies and their attorneys all reasonable assistance (including the giving of testimony) to obtain the Company Inventions and the underlying intellectual property for its benefit, all without additional compensation to Manager from the OptiNose Companies, but entirely at the OptiNose Companies' expense.

5.7.2 In addition, the Company Inventions will be deemed "work made for hire", as such term is defined under the copyright law of the United States, on behalf of the OptiNose Companies and Manager agree that the OptiNose Companies will be the sole owner of the Company Inventions, and all underlying rights therein, in all media now known or hereinafter devised, throughout the universe and in perpetuity without any further obligations or compensation to Manager. If the Company Inventions, or any portion thereof, are deemed not to be work made for hire, Manager hereby irrevocably conveys, transfers, assigns and delivers to the OptiNose Companies, all rights, titles and interests, in all media now known or hereinafter devised, throughout the universe and in perpetuity, in and to the Company Inventions, including without limitation: (a) all of Manager's rights, titles and interests in and to any underlying intellectual property (and all renewals, revivals and extensions thereof) related to the Company Inventions: (b) all rights of any kind or any nature now or hereafter recognized, including without limitation, the unrestricted right to make modifications, adaptations and revisions to the Company Inventions, to exploit and allow others to exploit the Company Inventions; and (c) all rights to sue at law or in equity for any infringement, or other unauthorized use or conduct in derogation of the Company Inventions, known or unknown, prior to the date hereof, including without limitation the right to receive all proceeds and damages therefrom. In addition, Manager hereby waives any so-called "moral rights" with respect to the Company Inventions. Manager hereby waives any and all currently existing and future monetary rights in and to the Company Inventions and all patents and other intellectual property rights that may issue thereon, including, without limitation, any rights that would otherwise accrue to your benefit by virtue of Manager being an employee of or other service provider to the OptiNose Companies.

5.7.3 To the extent that Manager is unable to assign any of Manager's right, title or interest in any Company Invention (as set forth in Section 5.7.2) under applicable law, for any such Company Invention and the underlying intellectual property rights, Manager hereby grants to the Optinose Companies an exclusive, irrevocable, perpetual, transferable, worldwide, fully paid license to such Company Invention and the underlying intellectual property, with the right to sublicense, use, modify, create derivative works

and otherwise fully exploit such Company Invention and the underlying intellectual property, to assign this license and to exercise all rights and incidents of ownership of the Company Invention.

5.7.4 To the extent that any of the Company Inventions are derived by, or require use by the Optinose Companies of, any works, Inventions, or other intellectual property rights that Manager owns, which are not assigned hereby, Manager hereby grants to the Optinose Companies an irrevocable, perpetual, transferable, worldwide, non-exclusive, royalty free license, with the right to sublicense, use, modify and create derivative works using such works, Inventions or other intellectual property rights, but only to the extent necessary to permit the Optinose Companies to fully realize their ownership rights in the Company Inventions.

5.8 ***Cooperation.*** Upon the receipt of notice from the OptiNose Companies (including outside counsel), Manager agrees that while employed by the OptiNose Companies and thereafter, Manager will respond and provide information with regard to matters in which Manager has knowledge as a result of his employment with the OptiNose Companies, and will provide reasonable assistance to the Employer and its representatives in defense of any claims that may be made against the Employer, and will assist the Employer in the prosecution of any claims that may be made by the Employer, to the extent that such claims may relate to the period of his employment with the OptiNose Companies (or any predecessor). Manager agrees to promptly inform the OptiNose Companies if he becomes aware of any lawsuits involving such claims that may be filed or threatened against the Employer. He also agrees to promptly inform the OptiNose Companies (to the extent he is legally permitted to do so) if he is asked to assist in any investigation of the Employer (or their actions), regardless of whether a lawsuit or other proceeding has then been filed against the Employer with respect to such investigation, and will not do so unless legally required.

5.9 ***Return of Property***. On the date of the termination of Manager's employment with the OptiNose Companies for any reason (or at any time prior thereto at the OptiNose Companies' request), he will return all property belonging to the Employer (including, but not limited to, any Employer provided laptops, computers, cell phones, wireless electronic mail devices or other equipment, or documents and property belonging to the Employer).

5.10 ***Injunctive Relief.*** It is further expressly agreed that the Employer may or could suffer irreparable injury if Manager were to violate the provisions of this Section 5 and that the Employer could by reason of such violation be entitled to injunctive relief in a court of appropriate jurisdiction and Manager further consents and stipulates to the entry of such injunctive relief in such court prohibiting Manager from violating the provisions of this Section 5.

5.11 ***Survival of Provisions.*** The obligations contained in this Section 5 will survive the termination of Manager's employment with the OptiNose Companies and will be fully enforceable thereafter. If it is determined by a court of competent jurisdiction in any state that any restriction in this Section 5 is excessive in duration or scope or extends for too long a period of time or over too great a range of activities or in too broad a

geographic area or is unreasonable or unenforceable under the laws of that state, it is the intention of the parties that such restriction may be modified or amended by the court to render it enforceable to the maximum extent permitted by the law of that state or jurisdiction.

5.12 ***Series C Financing.*** Concurrently with the initial closing of the Series C Financing, Manager shall invest Two Hundred Fifty Thousand Dollars ($250,000) in Series C Stock of the Parent Company.

6. ***Representation***. Manager represents and warrants that his execution and delivery of this Agreement and his performing the completed services does not and will not conflict with or result in any breach or default under any agreement, contract or arrangement which he is a party to or violate any other legal restriction.

7. ***Assignment***. Notwithstanding anything else herein, this Agreement is personal to Manager and neither this Agreement nor any rights hereunder may be assigned by Manager. The OptiNose Companies may assign this Agreement to an affiliate (provided the OptiNose Companies remain as primary obligers hereunder) or to any acquiror of all or substantially all of the assets of the OptiNose Companies. This Agreement will inure to the benefit of and be binding upon the personal and legal representatives, executors, administrators, successors, heirs, distributees, devisees, legatees and permitted assignees of the parties.

8. ***Arbitration.*** You agree that all disputes and controversies arising under or in connection with this Letter Agreement, other than seeking injunctive or other equitable relief under Section 5.10, will be settled by arbitration conducted before one (1) arbitrator mutually agreed to by the Company and you, sitting in New York, New York or such other location agreed to by you and the Company, in accordance with the National Rules for the Resolution of Employment Disputes of the American Arbitration Association then in effect; provided, however, that if the Company and you are unable to agree on a single arbitrator within 30 days of the demand by another party for arbitration, an arbitrator will be designated by the New York Office of the American Arbitration Association. The determination of the arbitrator will be final and binding on you and the Employer. Judgment may be entered on the award of the arbitrator in any court having proper jurisdiction. Each party will bear their own expenses of such arbitration.

9. ***Definition of "Person."*** As used herein, "person" means any individual, sole proprietorship, joint venture, partnership, corporation, limited liability company, bank, association, cooperative, trust, estate, government, governmental, administrative or regulatory body, or other entity of any nature.

10. ***Notices***. All notices, consents or other communications required or permitted to be given under this Agreement shall be in writing and shall be deemed to have been duly given when delivered personally or one business day after being sent by a nationally recognized overnight delivery service, charges prepaid. Notices also may be given by facsimile or electronically via PDF and shall be effective on the date transmitted if confirmed within 48 hours thereafter by a signed original sent in the manner provided in the preceding sentence. Notice to Manager shall be sent to his address set forth on the signature page hereto. Notice to the OptiNose Companies shall be sent to its address set forth on the signature page hereto. Either

party may change its address for notice and the address to which copies must be sent by giving notice of the new addresses to the other party in accordance with this Section 9, provided, however, that any such change of address notice shall not be effective unless and until received.

11. ***Governing Law.*** This Letter Agreement and any other document or instrument delivered pursuant hereto, and all claims or causes of action that may be based upon, arise out of or relate to this Agreement will be governed by, and construed under and in accordance with, the internal laws of the State of Delaware, without reference to rules relating to conflicts of laws.

12. ***Witholding Taxes.*** The OptiNose Companies may withhold from any and all amounts payable to Manager such federal, state and local taxes as may be required to be withheld pursuant to any applicable laws or regulations.

13. ***Entire Agreement; Amendments.*** This Agreement and the agreements referenced herein contain the entire agreement of the parties relating to the subject matter hereof, and supercede in their entirety any and all prior and/or contemporaneous agreements, understandings or representations relating to the subject matter hereof, whether written or oral. No amendments, alterations or modifications of this Agreement will be valid unless made in writing and signed by the parties hereto.

14. ***Section Headings.*** The section headings used in this Agreement are included solely for convenience and will not affect, or be used in connection with, the interpretation of this Agreement.

15. ***Severability; Waiver.*** The provisions of this Agreement will be deemed severable and the invalidity of unenforceability of any provision will not affect the validity or enforceability of the other provisions hereof. No failure to exercise, delay in exercising, or single or partial exercise of any right, power or remedy by either party, and no course of dealing between the parties, shall constitute a waiver of, or shall preclude any other or further exercise of, any right, power or remedy.

16. ***Counterparts.*** This Agreement may be executed in several counterparts (including via facsimile and/or PDF), each of which will be deemed to be an original but all of which together will constitute one and the same instruments.

17. ***Section 409A.*** Manager and the OptiNose Companies intend that the payments and benefits provided for in this Agreement either be exempt from Section 409A of the Internal Revenue Code of 1986, as amended ("**Section 409A**"), or be provided for in a manner that complies with Section 409A of the Code. Neither the Manager nor the OptiNose Companies individually or in combination, may accelerate any payment or benefit that is subject to Section 409A, except in compliance with Section 409A and the provisions of this Agreement, and no amount that is subject to Section 409A shall be paid prior to the earliest date on which it may be paid without violating Section 409A. To the extent that any provision hereof is modified in order to comply with Section 409A, such modification shall be made in good faith and shall, to the maximum extent reasonably possible, maintain the original intent and economic benefit to the Manager and the OptiNose Companies of the applicable provision without violating the provisions of Section 409A. In no event whatsoever shall the OptiNose Companies be liable for any additional tax, interest or penalty that may be imposed on the Manager by Section 409A

or damages for failing to comply with Section 409A. For purposes of Section 409A, the Manager's right to receive installment payments pursuant to this Agreement including, without limitation, each severance payment and COBRA continuation reimbursement shall be treated as a right to receive a series of separate and distinct payments. The Manager will be deemed to have terminated employment for purposes of determining the timing of any payments or

benefits hereunder that are classified as deferred compensation only upon a "separation from service" within the meaning of Section 409A. Any amount that the Manager is entitled to be reimbursed under this Agreement will be reimbursed to the Manager as promptly as practical and in any event not later than the last day of the calendar year after the calendar year in which the expenses are incurred, any right to reimbursement or in kind benefits will not be subject to liquidation or exchange for another benefit, and the amount of the expenses eligible for reimbursement during any taxable year will not affect the amount of expenses eligible for reimbursement in any other taxable year. Whenever a payment under this Agreement specifies a payment period with reference to a number of days (e.g., "payment shall be made within thirty (30) days following the date of termination"), the actual date of payment within the specified period shall be within the sole discretion of the Optinose Companies.

17. ***Void If Closing Does Not Occur.*** If the Subscription Agreement pursuant to which the Series C Financing is being consummated is terminated prior to the Initial Closing (as defined therein) in accordance with its terms, this Agreement shall be automatically terminated and shall forthwith become null and void, as if it were never in effect, and there shall be no liability on the part of any party hereto or its officers, directors, partners or members.

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INTENDING TO BE LEGALLY BOUND HEREBY, THIS AGREEMENT HAS BEEN EXECUTED AND DELIVERED ON AND AS OF THE DATE FIRST ABOVE STATED.

OPTINOSE, INC.:

By: /s/ Helena K. Djupesland
Name: Helena K. Djupesland
Title: Authorized Signatory
Address: c/o WFD VENTURES LLC
Carnegie Hall Tower
152 West 57th Street, 10th Floor
New York, NY 10019

Fax: (212) 767-7575
Email: tim@wfdventures.com

MANAGER:

/s/ Peter K. Miller
Name: Peter K. Miller

Address:

Fax:
Email:

EXHIBIT 4.4

RELEASE AGREEMENT

This RELEASE AGREEMENT ("**Agreement**") made this [ ], 2010 (the "**Effective Date**"), between OptiNose, Inc. (including its successors and assigns, the "**Company**"), and [ ] (the "**Executive**").

1. Release.

a. In consideration of the amounts to be paid by the Company pursuant to the Employment Agreement, Executive, on behalf of himself and his heirs, executors, devisees, successors and assigns, knowingly and voluntarily releases, remises, and forever discharges the Company and its parents, subsidiaries or affiliates, together with each of their current and former principals, officers, directors, shareholders, agents, representatives and employees, and each of their heirs, executors, successors and assigns (collectively, the "**Releasees**"), from any and all debts, demands, actions, causes of action, accounts, covenants, contracts, agreements, claims, damages, omissions, promises, and any and all claims and liabilities whatsoever, of every name and nature, known or unknown, suspected or unsuspected, both in law and equity ("**Claims**"), which Executive ever had, now has, or may hereafter claim to have against the Releasees by reason of any matter or cause whatsoever arising from the beginning of time to the time he signs this Agreement (the "**General Release**"). This General Release of Claims shall apply to any Claim of any type, including, without limitation, any and all Claims of any type that Executive may have arising under the common law, under Title VII of the Civil Rights Act of 1964, the Civil Rights Act of 1991, the Older Workers Benefit Protection Act, the Americans With Disabilities Act of 1967, the Family and Medical Leave Act of 1993, the Employee Retirement Income Security Act of 1974, the Sarbanes-Oxley Act of 2002, each as amended, and any other federal, state or local statutes, regulations, ordinances or common law, or under any policy, agreement, contract, understanding or promise, written or oral, formal or informal, between any of the Releasees and Executive and shall further apply, without limitation, to any and all Claims in connection with, related to or arising out of Executive's employment relationship, or the termination of his employment, with the Company.

b. For the purpose of implementing a full and complete release, Executive understands and agrees that this Agreement is intended to include all claims, if any, which Executive or his heirs, executors, devisees, successors and assigns may have and which Executive does not now know or

suspect to exist in his favor against the Releasees, from the beginning of time until the time he signs this Agreement, and this Agreement extinguishes those claims.

c. In consideration of the promises of the Company set forth in the [ ] Agreement, Executive hereby releases and discharges the Releasees from any and all Claims that Executive may have against the Releasees arising under the Age Discrimination Employment Act of 1967, as amended, and the applicable rules and regulations promulgated thereunder ("**ADEA**"). Executive acknowledges that he understands that the ADEA is a federal statute that prohibits discrimination on the basis of age in employment, benefits and benefit plans. Executive also understands that, by signing this Agreement, he is waiving all Claims against any and all of the Releasees.

d. Except as provided in Section [ ] of the [ ] Agreement, Executive acknowledges and agrees that the Company has fully satisfied any and all obligations owed to him arising out of his employment with or termination from the Company, and no further sums or benefits are owed to him by the Company or by any of the other Releasees at any time.

2. Consultation with Attorney; Voluntary Agreement. The Company advises Executive to consult with an attorney of his choosing prior to signing this Agreement. Executive understands and

agrees that he has the right and has been given the opportunity to review this Agreement and, specifically, the General Release in Section 1 above, with an attorney. Executive also understands and agrees that he is under no obligation to consent to the General Release set forth in Section 1 above. Executive acknowledges and agrees that the payments to be made to Executive pursuant to the Employment Agreement are sufficient consideration to require him to abide with his obligations under this Agreement, including but not limited to the General Release set forth in Section 1. Executive represents that he has read this Agreement, including the General Release set forth in Section 1, and understands its terms and that he enters into this Agreement freely, voluntarily, and without coercion.

3. Effective Date; Revocation. Executive acknowledges and represents that he has been given twenty-one (21) days during which to review and consider the provisions of this Agreement and, specifically, the General Release set forth in Section 1 above. Executive further acknowledges and represents that he has been advised by the Company that he has the right to revoke this Agreement for a period of seven (7) days after signing it. Executive acknowledges and agrees that, if he wishes to revoke this Agreement, he must do so in a writing, signed by him and received by the Company no later than 5:00 p.m. Eastern Time on the seventh (7^{th}) day of the revocation period. If no such revocation occurs, the General Release and this Agreement shall become effective on the eighth (8^{th}) day following his execution of this Agreement.

4. Severability. In the event that any one or more of the provisions of this Agreement shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remainder of the Agreement shall not in any way be affected or impaired thereby.

5. Governing Law. This Agreement and any other document or instrument delivered pursuant hereto, and all claims or causes of action that may be based upon, arise out of or relate to this Agreement will be governed by, and construed under and in accordance with, the internal laws of the State of Delaware, without reference to rules relating to conflicts of laws.

6. Entire Agreement. This Agreement, [the Employment Agreement and the other agreements referred to in the Employment Agreement] constitute the entire agreement and understanding of the parties with respect to the subject matter herein and supersedes all prior agreements, arrangements and understandings, written or oral, between the parties. Executive acknowledges and agrees that he is not relying on any representations or promises by any representative of the Company concerning the meaning of any aspect of this Agreement.

7. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original but all of which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the dates set forth below.

OPTINOSE, INC.

By: _____ Date: _____

Name:

Title:

By: _____ Date: _____

[Name]

Schedule 3.4.1(a)

Plan

Schedule 3.4.1(a) has been omitted as such document has been separately filed as an exhibit to the Form S-1. The Company agrees to furnish supplementally a copy of this schedule to the Securities and Exchange Commission upon request.

Schedule 3.4.1(b)

Capitalization

See attached

OptiNose, Inc.

June 18, 2010

Dr. Ramy Mahmoud
18 Moores Grove Ct.
Skillman, NJ 08558

Dear Dr. Mahmoud:

The purpose of this letter (this "Letter Agreement") is to acknowledge and set forth the terms and conditions of your employment as the Chief Operating Officer of OptiNose, Inc. (the "Company").

1. **Duties and Responsibilities**. While you are employed by the Company, you will serve as the Chief Operating Officer of the Company and will report to the Chief Executive Officer of the Company. You will have such duties and responsibilities that are commensurate with your position and such other duties and responsibilities as are from time to time assigned to you by the Chief Executive Officer or the board of directors of the Company (the "Board"). Your place of employment will be the Company's offices in the Philadelphia, Pennsylvania metropolitan area. While you are employed by the Company, you will devote your full business time, energy and skill to the performance of your duties and responsibilities hereunder; provided, however, that the Company shall consider allowing you to devote a reasonable amount of time either during or after business hours to Outside Activities (as defined below), so long as such activities do not prohibit or interfere with the performance by you of your duties under this Agreement, conflict with the business of the Company or violate any of the provisions of Section 7 herein. For purposes hereof, "Outside Activities" shall include the oversight of passive investments and activities involving professional, charitable, education, religious and other organizations (including membership on boards of for-profit and non-profit organizations); in each case, as approved in advance in writing by the Company's Chief Executive Officer and Chairman of the Board.

2. **Base Salary**. While you are employed by the Company, the Company will pay you a base salary ("Base Salary") at the rate of $350,000 per year, paid in accordance with the usual payroll practices of the Company. Your base salary may be reviewed annually by the Board (or a committee thereof).

3. **Discretionary Bonus**. You will be eligible to receive three annual cash bonuses which shall each be paid subject to the achievement of certain Company milestones. These milestones shall be reasonably determined by the Board and shall be no longer than 15 months from each previous employment anniversary. Each of the three cash bonuses would be in an amount of up to 30% of Base Salary, as determined by the Board, and shall be paid within 30 days of the Company's achievement of each milestone (as determined by the Board).

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4. **Unit Options**.

(a) **Option Grant**. The Company shall grant to you pursuant to the Grant Agreement (as defined below) the right to purchase 137,376 of the Common Shares of the Company (constituting 2.0% of the Company's outstanding equity on a fully diluted basis as of the date hereof (after taking into effect the issuance of all of the equity pursuant to the Series C Financing)) or an economically equivalent interest under the terms of the 2010 Stock Incentive Plan of the Company, in the form attached hereto as Exhibit 4(a), as amended from time to time (the "Plan") at an exercise price equal to the fair market value of the Common Shares on the date hereof (i.e., the date of grant) (the "Option Grant") as determined by a third party valuation to be commissioned by the Board.

(b) **Vesting**. The Option Grant will vest and become exercisable in two equal portions. The first portion (time vesting) will vest in four equal consecutive installments, with one-fourth vesting on each of the first four anniversaries of the date of grant, provided that you are continuously employed by the Company on each such vesting date. The second portion (performance vesting) will vest on achievement of performance criteria established by the Board and as set forth in the Grant Agreement (as defined below), provided that you are continuously employed by the Company on each such vesting date. Any unvested portion of the Option Grant will become fully vested and exercisable upon a Change in Control only as set forth in the Plan and the Grant Agreement (as defined below). Furthermore, the performance criteria milestones shall be as set forth on Schedule A, attached hereto.

(c) **Form of Grant**. The Option Grant will be granted pursuant to and, to the extent not contrary to the terms of this Letter Agreement, will be subject to the terms and conditions imposed under the Plan and a grant agreement in the form attached hereto as Exhibit 4(c) ("Grant Agreement") to be entered into between you and the Company which will include, without limitation, provisions relating to limits on transfer, post-termination exercise periods and other provisions as determined by the Company.

5. **Benefits and Fringes**.

(a) **General**. While you are employed by the Company, you will be entitled to such benefits and fringes, if any, as are generally provided from time to time by the Company to its employees, subject to the satisfaction of any eligibility requirements.

(b) **Vacation**. You will also be entitled to annual paid vacation in accordance with the Company's vacation policies in effect from time to time, which may be taken at such times as you elect with due regard to the needs of the Company.

(c) **Reimbursement of Business Expenses**. Upon presentation of appropriate documentation, you will be reimbursed in accordance with the Company's expense reimbursement policy for all reasonable and necessary business expenses incurred in connection with the performance of your duties and responsibilities hereunder.

(d) **Life Insurance**. While you are employed by the Company, the Company shall pay for term life insurance (which you will own) that has a death benefit equal to approximately $3,000,000.

6. **Termination of Employment**.

(a) At all times, your employment with the Company is "at-will" which means that employment with the Company may be terminated at any time by either you or the Company with or without "Cause,"

(b) **Termination upon Death**. If you die, then your employment with the Company shall terminate as of the date of your death, at which time all of your rights to compensation and benefits under Sections 2, 3 and 5 hereof or otherwise shall immediately terminate, except that your heirs, personal representatives or estate shall be entitled to: (a) any unpaid portion of your compensation set forth above for periods, and to the extent fully earned, before the date of termination; (b) any accrued benefits up to the date of termination; and (c) any benefits that are required to be provided to your dependents after the date of termination under the general provisions of the employee benefit plans in which you participated as of the date of your death.

(c) **Termination upon Disability**. "Disability" means any physical or mental incapacity, illness or infirmity that prevents or significantly restricts you from performing the normal duties of a business executive on a full-time basis. If you suffer a Disability and the Disability continues for more than three months, then the Company shall have the right to terminate your employment upon written notice to you, at which time all of your rights to compensation and benefits under Sections 2, 3 and 5 of this Agreement or otherwise shall immediately terminate, except that you shall be entitled to (a) any unpaid portion of your compensation set forth above for periods, and to the extent fully earned, before the date of termination; (b) any accrued benefits up to the date of termination; and (c) any benefits that are required to be provided after the date of termination under the general provisions of the employee benefit plans in which you participated as of the date of termination.

(d) **Termination by the Company for Cause**. The Company may, upon written notice to you, immediately terminate your employment for cause. "Cause" shall exist upon (i) your breach of any fiduciary duty or material legal or contractual obligation to the Company or any of its affiliates (including, without limitation, pursuant to a Company or affiliate policy or the restrictive covenants set forth in Section 7 of this Agreement or any other applicable restrictive covenants between you and the Company or any of its affiliates), or the Company's direct or indirect equity holders, (ii) your failure to follow the reasonable instructions of the Chief Executive Officer or the Board (other than as a result of total or partial incapacity due to physical or mental illness), which breach, if curable, is not cured within 30 days after notice to you specifying in reasonable detail the nature of such breach, or, if cured, recurs within 90 business days, (iii) your gross negligence, willful misconduct, fraud, insubordination, acts of dishonesty or conflict of interest relating to the Company or any of its affiliates or direct or indirect equityholders, or (iv) your commission of any misdemeanor which has a material impact on the affairs, business or reputation of the Company or any of its affiliates or your indictment for, or plea of nolo contendere to, a crime constituting a felony under the laws of the United States or any state thereof. Upon a termination of your employment for Cause, all of your rights to compensation and benefits under Sections 2. 3 and 5 of this Agreement or otherwise shall immediately terminate, except that you shall be entitled to (x) any unpaid portion of your compensation under this Agreement for periods before, and to the extent fully earned on, the date

of the first occurrence of the circumstances constituting cause for termination under this provision; (y) any accrued benefits up to such date; and (z) any benefits that are required to be provided after such date under the general provisions of the employee benefit plans in which you participated as of the date of termination.

(e) **Termination without Cause**. The Company may, upon written notice to you, terminate your employment without Cause. Upon a termination of your employment without Cause, the Company shall continue to pay to you, for six months after the last day of your employment with the Company, compensation set forth in Section 2 at the rate in effect on the date of termination (it being understood that you will also be entitled to receive any unpaid bonus that is fully earned at the time of termination), and the Company shall continue to provide to you, for six months after the last day of your employment with the Company, the benefits of the standard group medical, vision and dental plans maintained or adopted by the Company on substantially the same terms as such benefits are provided to employees during such period.

(f) Payment to you of any amounts otherwise due hereunder upon termination shall be conditioned on execution of a general release by you in favor of the Company and its affiliates in the form attached hereto as Exhibit 6(f) and the lapse of any revocation period with the release not having been revoked. Such release shall be provided to you within 3 days of termination of employment and executed by you within 30 days after delivery. Any payments that would have otherwise been made prior to execution, delivery and lapse of any revocation period shall be made in a lump sum at the end of any revocation period.

7. **Covenants**.

(a) **Non-Competition**. So long as you are employed by the Company under this Letter Agreement and for the six-month period following the termination of your employment with the Company for any reason (the "Restricted Period"), you agree that you will not, directly or indirectly, without the prior written consent of the Company, engage in Competition with the Company or any of its affiliates (collectively, the "Employer"). "Competition" means participating, directly or indirectly, as an individual proprietor, partner, stockholder, officer, employee, director, joint venturer, investor, lender, consultant or in any other capacity whatsoever in any business or venture that competes in any way with the business of developing, manufacturing, licensing, selling or distributing nasal drug delivery devices or related products (or any rights relating thereto).

(b) **Confidentiality**. You agree that you will not, directly or indirectly, use, make available, sell, disclose or otherwise communicate to any person or entity, other than in the course of your assigned duties hereunder and for the benefit of the Employer, either while you are employed by the Company hereunder or at any time thereafter, any business and technical information or trade secrets, nonpublic, proprietary or confidential information, knowledge or data relating to the Employer whether the foregoing will have been obtained by you during your employment hereunder or otherwise. The foregoing will not apply to information that (i) was known to the public prior to its disclosure to you; (ii) becomes generally known to the public or in the Employer's industry subsequent to disclosure to you through no wrongful act by you or any of your representatives; or (iii) you are required to disclose by applicable law, regulation or legal process (provided that you provide the Company with prior notice of the contemplated

disclosure and cooperate with the Company in seeking a protective order or other appropriate protection of such information).

(c) **Non-Solicitation of Customers**. You agree that during the Restricted Period, you will not, directly or indirectly, solicit or influence, or attempt to solicit or influence, customers of the Employer to purchase goods or services then sold by the Employer from any other person or entity.

(d) **Non-Solicitation of Suppliers**. You agree that during the Restricted Period, you will not, directly or indirectly, solicit or influence, or attempt to solicit or influence, the Company's suppliers to provide goods or services then provided to the Employer to any other person or entity in Competition with the Employer.

(e) **Non-Solicitation of Employees**. You recognize that you will possess confidential information about other employees of the Employer relating to their education, experience, skills, abilities, compensation and benefits, and inter-personal relationships with customers of the Employer. You recognize that the information you possess and will possess about these other employees is not generally known, is of substantial value to the Employer in developing its business and in securing and retaining customers, and has been and will be acquired by you because of your business position with the Employer. You agree that, during the Restricted Period, you will not,(x) directly or indirectly, individually or on behalf of any other person or entity solicit or recruit any employee of the Employer to leave such employment for the purpose of being employed by, or rendering services to, you or any person or entity unaffiliated with the Employer, or (y) convey any such confidential information or trade secrets about other employees of the Employer to any person or entity other than in the course of your assigned duties hereunder and for the benefit of the Employer.

(f) **Non-Disparagement**. You agree that you will not, nor will you induce others to, Disparage the Employer or any of their past or present officers, directors, employees or products. "Disparage" will mean making comments or statements to the press, the Employer's employees or any individual or entity with whom the Employer has a business relationship that would adversely affect in any manner: (i) the conduct of the business of the Employer (including, without limitation, any products or business plans or prospects); or (ii) the business reputation of the Employer, or any of their products, or their past or present officers, directors or employees.

(g) **Inventions**.

(i) You acknowledge and agree that all trade secrets, mask works, concepts, drawings, materials, documentation, procedures, diagrams, specifications, models, processes, formulae, source and object codes, data, programs, know-how, designs, techniques, ideas, methods, inventions, discoveries, improvements, work products, developments or other works of authorship ("Inventions"), whether patentable or unpatentable, (x) that relate to your work with the Company, made, developed or conceived by you, solely or jointly with others or with the use of any of the Company's equipment, supplies, facilities or trade secrets (y) suggested by any work that you perform in connection with the Company, either while

performing your duties with the Company or on your own time, but only insofar as the Inventions are related to your work as an employee of the Company (collectively, "Company Inventions"), will belong exclusively to the Company (or its designee), whether or not patent applications are filed thereon. You will keep full and complete written records (the "Records"), in the manner prescribed by the Company, of all Company Inventions, and will promptly disclose all Company Inventions completely and in writing to the Company. The Records will be the sole and exclusive property of the Company, and you will surrender them upon the termination of your employment, or upon the Company's request. You will assign to the Company the Company Inventions including all rights in and to any related patents and other intellectual property that may issue thereon in any and all countries, whether during or subsequent to the term of this Letter Agreement, together with the right to file, in your name or in the name of the Company (or its designee), applications for patents and equivalent rights (the "Applications"). You will, at any time during and subsequent to the term of this Letter Agreement, make such applications, sign such papers, take all rightful oaths, and perform all acts as may be requested from time to time by the Company with respect to the Company Inventions and the underlying intellectual property. You will also execute assignments to the 'Company (or its designee) of the Applications, and give the Company and its attorneys all reasonable assistance (including the giving of testimony) to obtain the Company Inventions and the underlying intellectual property for its benefit, all without additional compensation to you from the Company, but entirely at the Company's expense.

(ii) In addition, the Company Inventions will be deemed "work made for hire", as such term is defined under the copyright law of the United States, on behalf of the Company and you agree that the Company will be the sole owner of the Company Inventions, and all underlying rights therein, in all media now known or hereinafter devised, throughout the universe and in perpetuity without any further obligations or compensation to you. If the Company Inventions, or any portion thereof, are deemed not to be work made for hire, you hereby irrevocably convey, transfer, assign and deliver to the Company, all rights, titles and interests, in all media now known or hereinafter devised, throughout the universe and in perpetuity, in and to the Company Inventions, including without limitation: (a) all of your rights, titles and interests in and to any underlying intellectual property (and all renewals, revivals and extensions thereof) related to the Company Inventions; (b) all rights of any kind or any nature now or hereafter recognized, including without limitation, the unrestricted right to make modifications, adaptations and revisions to the Company Inventions, to exploit and allow others to exploit the Company Inventions; and (c) all rights to sue at law or in equity for any infringement, or other unauthorized use or conduct in derogation of the Company Inventions, known or unknown, prior to the date hereof, including without limitation the right to receive all proceeds and damages

therefrom. In addition, you hereby waive any so-called "moral rights" with respect to the Company Inventions. You hereby waive any and all currently existing and future monetary rights in and to the Inventions and all patents and other intellectual property rights that may issue thereon, including, without limitation, any rights that would otherwise accrue to your benefit by virtue of you being an employee of or other service provider to the Company.

(iii) To the extent that you are unable to assign any of your right, title or interest in any Company Invention under applicable law, for any such Company Invention and the underlying intellectual property rights, you hereby grant to the Company an exclusive, irrevocable, perpetual, transferable, worldwide, fully paid license to such Company Invention and the underlying intellectual property, with the right to sublicense, use, modify, create derivative works and otherwise fully exploit such Company Invention and the underlying intellectual property, to assign this license and to exercise all rights and incidents of ownership of the Company Invention.

(iv) To the extent that any of the Company Inventions are derived by, or require use by the Company of, any works, Inventions, or other • intellectual property rights that you own, which are not assigned hereby, you hereby grant to the Company an irrevocable, perpetual, transferable, worldwide, non-exclusive, royalty free license, with the right to sublicense, use, modify and create derivative works using such works, Inventions or other intellectual property rights, but only to the extent necessary to permit the Company to fully realize their ownership rights in the Company Inventions.

(h) **Cooperation**. Upon the receipt of notice from the Company (including outside counsel), you agree that while employed by the Company and thereafter, you will respond and provide information with regard to matters in which you have knowledge as a result of your employment with the Company, and will provide reasonable assistance to the Employer and its representatives in defense of any claims that may be made against the Employer, and will assist the Employer in the prosecution of any claims that may be made by the Employer, to the extent that such claims may relate to the period of your employment with the Company (or any predecessor). You agree to promptly inform the Company if you become aware of any lawsuits involving such claims that may be filed or threatened against the Employer. You also agree to promptly inform the Company (to the extent you are legally permitted to do so) if you are asked to assist in any investigation of the Employer (or their actions), regardless of whether a lawsuit or other proceeding has then been filed against the Employer with respect to such investigation, and will not do so unless legally required.

(i) **Return of Property**. On the date of the termination of your employment with the Company for any reason (or at any time prior thereto at the Company's request), you will return all property belonging to the Employer (including, but not limited to, any Employer

provided laptops, computers, cell phones, wireless electronic mail devices or other equipment, or documents and property belonging to the Employer).

(j) **Injunctive Relief**. It is further expressly agreed that the Employer will or would suffer irreparable injury if you were to violate the provisions of this paragraph 7 and that the Employer would by reason of such violation be entitled to injunctive relief in a court of appropriate jurisdiction and you further consent and stipulate to the entry of such injunctive relief in such court prohibiting you from violating the provisions of this paragraph 7.

(k) **Survival of Provisions**. The obligations contained in this paragraph 7 will survive the termination of your employment with the Company and will be fully enforceable thereafter. If it is determined by a court of competent jurisdiction in any state that any restriction in this paragraph 7 is excessive in duration or scope or extends for too long a period of time or over too great a range of activities or in too broad a geographic area or is unreasonable or unenforceable under the laws of that state, it is the intention of the parties that such restriction may be modified or amended by the court to render it enforceable to the maximum extent permitted by the law of that state or jurisdiction.

8. **Representation**. You represent and warrant that your execution and delivery of this Letter Agreement and your performing the contemplated services does not and will not conflict with or result in any breach or default under any agreement, contract or arrangement which you are a party to or violate any other legal restriction.

9. **Assignment**. Notwithstanding anything else herein, this Letter Agreement is personal to you and neither the Letter Agreement nor any rights hereunder may be assigned by you. The Company may assign the Letter Agreement to an affiliate or to any acquiror of all or substantially all of the assets of the Company. This Letter Agreement will inure to the benefit of and be binding upon the personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees, legatees and permitted assignees of the parties.

10. **Arbitration**. You agree that all disputes and controversies arising under or in connection with this Letter Agreement, other than seeking injunctive or other equitable relief under paragraph 7(j), will be settled by arbitration conducted before one (1) arbitrator mutually agreed to by the Company and you, sitting in New York, New York or such other location agreed to by you and the Company, in accordance with the National Rules for the Resolution of Employment Disputes of the American Arbitration Association then in effect; provided, however, that if the Company and you are unable to agree on a single arbitrator within 30 days of the demand by another party for arbitration, an arbitrator will be designated by the New York Office of the American Arbitration Association. The determination of the arbitrator will be final and binding on you and the Employer. Judgment may be entered on the award of the arbitrator in any court having proper jurisdiction. Each party will bear their own expenses of such arbitration.

11. **Governing Law**. This Letter Agreement and any other document or instrument delivered pursuant hereto, and all claims or causes of action that may be based upon, arise out of or relate to this Agreement will be governed by, and construed under and in accordance with, the internal laws of the State of Delaware, without reference to rules relating to conflicts of laws.

12. **Withholding Taxes**. The Company may withhold from any and all amounts payable to you such federal, state and local taxes as may be required to be withheld pursuant to any applicable laws or regulations.

13. **Entire Agreement; Amendments**. This Letter Agreement and the agreements referenced herein contain the entire agreement of the parties relating to the subject matter hereof, and supercede in their entirety any and all prior and/or contemporaneous agreements, understandings or representations relating to the subject matter hereof, whether written or oral. No amendments, alterations or modifications of this Letter Agreement will be valid unless made in writing and signed by the parties hereto.

14. **Section Headings**. The section headings used in this Letter Agreement are included solely for convenience and will not affect, or be used in connection with, the interpretation of this Letter Agreement.

15. **Severability**. The provisions of this Letter Agreement will be deemed severable and the invalidity of unenforceability of any provision will not affect the validity or enforceability of the other provisions hereof. No failure to exercise, delay in exercising, or single or partial exercise of any right, power or remedy by either party, and no course of dealing between the parties, shall constitute a waiver of, or shall preclude any other or further exercise of, any right, power or remedy.

16. **Counterparts**. This Letter Agreement may be executed in several counterparts (including via facsimile and/or .pdf), each of which will be deemed to be an original but all of which together will constitute one and the same instruments.

17. **Section 409A**. The parties hereto intend that the payments and benefits provided for in this Letter Agreement either be exempt from Section 409A of the Internal Revenue Code of 1986, as amended ("Section 409A"), or be provided for in a manner that complies with Section 409A of the Code. Neither of the parties hereto, individually or in combination, may accelerate any payment or benefit that is subject to Section 409A, except in compliance with Section 409A and the provisions of this Letter Agreement, and no amount that is subject to Section 409A shall be paid prior to the earliest date on which it may be paid without violating Section 409A. To the extent that any provision hereof is modified in order to comply with Section 409A, such modification shall be made in good faith and shall, to the maximum extent reasonably possible, maintain the original intent and economic benefit to you and the Company of the applicable provision without violating the provisions of Section 409A. In no event whatsoever shall the Company be liable for any additional tax, interest or penalty that may be imposed on you by Section 409A or damages for failing to comply with Section 409A. For purposes of Section 409A, your right to receive installment payments pursuant to this Agreement including, without limitation, each severance payment and COBRA continuation reimbursement shall be treated as a right to receive a series of separate and distinct payments. You will be deemed to have terminated employment for purposes of determining the timing of any payments or benefits hereunder that are classified as deferred compensation only upon a "separation from service" within the meaning of Section 409A. Any amount that you are entitled to be reimbursed under this Agreement will be reimbursed to you as promptly as practical and in any event not later than the last day of the calendar year after the calendar year in which the expenses are

incurred, any right to reimbursement or in kind benefits will not be subject to liquidation or exchange for another benefit, and the amount of the expenses eligible for reimbursement during any taxable year will not affect the amount of expenses eligible for reimbursement in any other taxable year. Whenever a payment under this Agreement specifies a payment period with reference to a number of days (e.g., "payment shall be made within thirty (30) days following the date of termination"), the actual date of payment within the specified period shall be within the sole discretion of the Company.

[Signature Page Follows]

Schedule A

Criteria (Milestones) for Vesting of Performance Options

Subject to the terms set forth in this Agreement, the Plan and the Grant Agreement, the Performance Options vest as follows:

(i) 25% shall vest on the last date on which the Company (or its wholly-owned subsidiary) successfully completes 100% enrollment of the sumatriptan Phase III clinical trial for migraine, and two fluticasone Phase III clinical trials for nasal polypsis, with the number of patients/dosages constituting 100% enrollment as determined by the Board;

(ii) 25% shall vest on the last date on which the Company (or its wholly-owned subsidiary) has received written notification from the U.S. Food and Drug Administration, pursuant to 21 CFR §314.101(a)(2), that the new drug applications for sumatriptan and fluticasone have been filed;

(iii) 25% shall vest on the date on which the Company (or its wholly-owned subsidiary) receives final written approval from the United States Food and Drug Administration for sumatriptan pursuant to 21 CFR §314.105(a); and

(iv) 25% shall vest on the date on which the Company (or its wholly-owned subsidiary) receives final written approval from the United States Food and Drug Administration for fluticasone pursuant to 21 CFR §314.105(a).

We hope that you find the foregoing terms and conditions acceptable. Please indicate your agreement with the terms and conditions set forth in this Letter Agreement by signing the enclosed duplicate original of this Letter Agreement and returning it to the Chief Executive Officer of the Company.

We look forward to your employment with the Company.

Very truly yours,

OptiNose, Inc.

By: /s/ Peter K. Miller

Name: Peter K. Miller
Title: President and Chief Executive Officer

Accepted and Agreed:

/s/ Ramy Mahmoud
Ramy Mahmoud

Exhibit 10.4

OptiNose US, Inc.

September 15, 2016

Thomas E. Gibbs
2706 Applewood Drive
Eagleville, PA 19403

Dear Thomas:

The purpose of this letter (this "Letter Agreement") is to acknowledge and set forth the terms and conditions of your employment as Chief Commercial Officer of OptiNose US, Inc. (the "Company").

1. **Duties and Responsibilities**. While you are employed by the Company, you will serve as Chief Commercial Officer of the Company and will report to the President & Chief Operating Officer of the Company. You will have such duties and responsibilities that are commensurate with your position and such other duties and responsibilities as are from time to time assigned to you by the Chief Executive Officer, the President & Chief Operating Officer or the board of directors of the Company (the "Board"). While you are employed by the Company, you will devote your full business time, energy and skill to the performance of your duties and responsibilities hereunder. You will not be permitted to engage in other activities that interfere with the performance by you of your duties under this Letter Agreement, conflict with the business of the Company or violate any of the provisions of Section 7 herein, such as membership on boards of other entities. Your place of employment will be the Company's offices in the Yardley, Pennsylvania metropolitan area.

2. **Base Salary**. While you are employed by the Company, the Company will pay you a base annual salary ("Base Salary") at the rate of $375,000 per year, paid in accordance with the usual payroll practices of the Company. Your Base Salary may be reviewed periodically by the Chief Executive Officer, President & Chief Operating Officer, and/or the Board (or a committee thereof).

3. **Discretionary Bonus**. You will be eligible to receive an annual target cash bonus of 45% of your Base Salary at the Board of Director's discretion and contingent upon attainment of certain Company milestones and/or individual objectives as determined by the Board of Directors. Payment of such bonus is contingent upon continued employment with the Company at the time of payment.

4. **Options**.

(a) **Option Grants**. Subject to Board approval and, if necessary, stockholder approval, the Company shall grant to you under the 2010 Stock Incentive Plan of OptiNose, Inc., as amended from time to time (the "Plan"), and subject to the terms of the Grant Agreements (as defined below):

(i) the right to purchase 50,000 shares of OptiNose, Inc.'s common stock, or an economically equivalent interest, at an exercise price equal to the fair market value of such common stock on the date of grant (the "Standard Option Grant"), and

(ii) the right to purchase 100,000 shares of OptiNose, Inc.'s common stock, or an economically equivalent interest, at an exercise price of $47.10 per share, which exercise price may be greater than the fair market value of such common stock on the date of grant (the "Success Option Grant").

(b) **Vesting**. The Standard Option Grant will vest and become exercisable over a period of 4 years provided that you have been continuously employed by the Company up to and on each such vesting date. Acceleration of vesting with respect to the Standard Option Grant, if any, on a change of control will be governed by the applicable Grant Agreement. The Success Option Grant will vest and become exercisable (i) in full immediately prior to and contingent upon a Change of Control (but not an IPO) and (ii) on and following an IPO to the extent the option has time vested in accordance with the Company's standard time vesting schedule described in the applicable Grant Agreement.

(c) **Form of Grant**. Each Option Grant will be granted pursuant to and, to the extent not contrary to the terms of this Letter Agreement, will be subject to the terms and conditions imposed under the Plan and the grant agreements ("Grant Agreements") to be entered into between you and OptiNose, Inc. which will include, without limitation, provisions relating to limits on transfer, post-termination exercise periods and other provisions as determined by OptiNose, Inc.

5. **Benefits and Fringes**.

(a) **General**. While you are employed by the Company, you will be entitled to such benefits and fringes, if any, as are generally provided from time to time by the Company to its employees, subject to the satisfaction of any eligibility requirements.

(b) **Vacation**. You will also be entitled to annual paid vacation in accordance with the Company's vacation policies in effect from time to time, which may be taken at such times as you elect with due regard to the needs of the Company.

(c) **Reimbursement of Business Expenses**. Upon presentation of appropriate documentation, you will be reimbursed in accordance with the Company's expense reimbursement policy for all reasonable and necessary business expenses incurred in connection with the performance of your duties and responsibilities hereunder.

6. **Termination of Employment**.

(a) At all times, your employment with the Company is "at-will" which means that employment with the Company may be terminated at any time by either you or the Company with or without "Cause."

(b) **Termination upon Death**. If you die, then your employment with the Company shall terminate as of the date of your death, at which time all of your rights to

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compensation and benefits under Sections 2-5 herein or otherwise shall immediately terminate, except that your heirs, personal representatives or estate shall be entitled to: (a) any unpaid portion of your compensation set forth in Section 2 above for periods before the date of termination; (b) any accrued benefits up to the date of termination; and (c) any benefits that are required to be provided to your dependents after the date of termination under the general provisions of the employee benefit plans in which you participated as of the date of your death.

(c) **Termination upon Disability**. "Disability" means any physical or mental incapacity, illness or infirmity that prevents or significantly restricts you from performing the normal duties of a business executive on a full-time basis. If you suffer a Disability and the Disability continues for more than three months, then the Company shall have the right to terminate your employment upon written notice to you, at which time all of your rights to compensation and benefits under Sections 2-5 herein or otherwise shall immediately terminate, except that you shall be entitled to (a) any unpaid portion of your compensation set forth in Section 2 above for periods before the date of termination; (b) any accrued benefits up to the date of termination; and (c) any benefits that are required to be provided after the date of termination under the general provisions of the employee benefit plans in which you participated as of the date of termination.

(d) **Termination by the Company for Cause**. The Company may, upon written notice to you, immediately terminate your employment for Cause. "Cause" shall exist upon (i) your breach of any fiduciary duty or material legal or contractual obligation to the Company or any of its affiliates (including, without limitation, pursuant to a Company or affiliate policy or the restrictive covenants set forth in Section 7 of this Letter Agreement or any other applicable restrictive covenants between you and the Company or any of its affiliates), or the Company's direct or indirect equity holders, (ii) your failure to follow the reasonable instructions of the Chief Executive Officer, the President & Chief Operating Officer, or the Board (other than as a result of total or partial incapacity due to physical or mental illness), which breach, if curable, is not cured within 30 days after notice to you specifying in reasonable detail the nature of such breach, or, if cured, recurs within 90 business days, (iii) your gross negligence, willful misconduct, fraud, insubordination, acts of dishonesty or conflict of interest relating to the Company or any of its affiliates or direct or indirect equity holders, or (iv) your commission of any misdemeanor which has a material impact on the affairs, business or reputation of the Company or any of its affiliates or your indictment for, or plea of nolo contendere to, a crime constituting a felony under the laws of the United States or any state thereof. Upon a termination of your employment for Cause, all of your rights to compensation and benefits under Section 2-5 of this Agreement or otherwise shall immediately terminate, except that you shall be entitled to (x) any unpaid portion of your compensation under Section 2 of this Agreement for periods before the date of the first occurrence of the circumstances constituting cause for termination under this provision; (y) any accrued benefits up to such date; and (z) any benefits that are required to be provided after such date under the general provisions of the employee benefit plans in which you participated as of the date of termination.

(e) **Termination without Cause**. The Company may, upon written notice to you, terminate your employment without Cause. Upon a termination of your employment without Cause, if you continue to comply with your obligations under Section 7, the Company shall continue to pay to you, for 3 months after the last day of your employment with the

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Company, compensation at the rate in effect on the date of termination, and the Company shall continue to provide to you, for 3 months after the last day of your employment with the Company, the benefits of the standard group medical, vision and dental plans maintained or adopted by the Company on substantially the same tutus as such benefits are provided to employees during such period.

(f) Payment to you of any amounts otherwise due hereunder upon termination shall be conditioned on execution of a general release by you in favor of the Company and its affiliates, which may be amended from time to time, and the lapse of any revocation period with the release not having been revoked. Such release shall be provided to you within 3 days of termination of employment and executed by you within 30 days after delivery. Any payments that would have otherwise been made prior to execution, delivery and lapse of any revocation period shall be made in a lump sum at the end of any revocation period.

7. **Covenants**.

(a) **Non-Competition**. So long as you are employed by the Company under this Letter Agreement and for the 6-month period following the termination of your employment with the Company for any reason (the "Restricted Period"), you agree that you will not, directly or indirectly, without the prior written consent of the Company, engage in Competition with the Company or any of its affiliates (collectively, the "Employer"). "Competition" means participating, directly or indirectly, as an individual proprietor, partner, stockholder, officer, employee, director, joint venturer, investor, lender, consultant or in any other capacity whatsoever in any business or venture that competes with any business that the Employer is engaged in as of the date of your termination of employment with the Company or is actively planning to engage in as of the date of your termination of employment with the Company. Notwithstanding the foregoing, after the termination of your employment, employment by or consultation for a publicly traded company that derives less than five percent (5%) of its net revenues from activities that compete with business that the Employer engages in, or are actively planning to engage in, shall not constitute Competition so long as you do not personally provide employment or consulting services to the business segment of such publicly traded company that engages in such competitive activities.

(b) **Confidentiality**. You agree that you will not, directly or indirectly, use, make available, sell, disclose or otherwise communicate to any person or entity, other than in the course of your assigned duties hereunder and for the benefit of the Employer, either while you are employed by the Company hereunder or at any time thereafter, any business and technical information or trade secrets, nonpublic, proprietary or confidential information, knowledge or data relating to the Employer whether the foregoing will have been obtained by you during your employment hereunder or otherwise. The foregoing will not apply to information that (i) was known to the public prior to its disclosure to you; (ii) becomes generally known to the public or in the Employer's industry subsequent to disclosure to you through no wrongful act by you or any of your representatives; or (iii) you are required to disclose by applicable law, regulation or legal process (provided that you provide the Company with prior notice of the contemplated disclosure and cooperate with the Company in seeking a protective order or other appropriate protection of such information).

(c) **Non-Solicitation of Customers**. You agree that during the Restricted Period, you will not, directly or indirectly, solicit or influence, or attempt to solicit or influence, customers of the Employer to purchase goods or services then sold by the Employer from any other person or entity.

(d) **Non-Solicitation of Suppliers**. You agree that during the Restricted Period, you will not, directly or indirectly, solicit or influence, or attempt to solicit or influence, the Company's suppliers to provide goods or services then provided to the Employer to any other person or entity in Competition with the Employer.

(e) **Non-Solicitation of Employees**. You recognize that you will possess confidential information about other employees of the Employer relating to their education, experience, skills, abilities, compensation and benefits, and inter-personal relationships with customers of the Employer. You recognize that the information you possess and will possess about these other employees is not generally known, is of substantial value to the Employer in developing its business and in securing and retaining customers, and has been and will be acquired by you because of your business position with the Employer. You agree that, during the Restricted Period, you will not, (x) directly or indirectly, individually or on behalf of any other person or entity solicit or recruit any employee of the Employer to leave such employment for the purpose of being employed by, or rendering services to, you or any person or entity unaffiliated with the Employer, or (y) convey any such confidential information or trade secrets about other employees of the Employer to any person or entity other than in the course of your assigned duties hereunder and for the benefit of the Employer.

(f) **Non-Disparagement**. You agree that you will not, nor will you induce others to, Disparage the Employer or any of their past or present officers, directors, employees or products. "Disparage" will mean making comments or statements to the press, the Employer's employees or any individual or entity with whom the Employer has a business relationship that would adversely affect in any manner: (i) the conduct of the business of the Employer (including, without limitation, any products or business plans or prospects); or (ii) the business reputation of the Employer, or any of their products, or their past or present officers, directors or employees.

(g) **Inventions**.

(i) You acknowledge and agree that all trade secrets, mask works, concepts, drawings, materials, documentation, procedures, diagrams, specifications, models, processes, formulae, source and object codes, data, programs, know-how, designs, techniques, ideas, methods, inventions, discoveries, improvements, work products, developments or other works of authorship ("Inventions"), whether patentable or unpatentable, (x) that relate to your work with the Company, made, developed or conceived by you, solely or jointly with others or with the use of any of the Company's equipment, supplies, facilities or trade secrets or (y) suggested by any work that you perform in connection with the Company, either while performing your duties with the Company or on your own time, but only insofar as the Inventions are related to your work as an employee of the Company (collectively, "Company Inventions"), will belong exclusively to the Company (or its designee), whether or not patent applications are filed thereon. You will keep full and complete written records (the "Records"), in the manner prescribed by the Company, of all Company Inventions, and will promptly

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disclose all Company Inventions completely and in writing to the Company. The Records will be the sole and exclusive property of the Company, and you will surrender them upon the termination of your employment, or upon the Company's request. You hereby assign to the Company the Company Inventions including all rights in and to any related patents and other intellectual property that may issue thereon in any and all countries, whether during or subsequent to the term of this Letter Agreement, together with the right to file, in your name or in the name of the Company (or its designee), applications for patents and equivalent rights (the "Applications"). You will, at any time during and subsequent to the term of this Letter Agreement, make such applications, sign such papers, take all rightful oaths, and perform all acts as may be requested from time to time by the Company with respect to the Company Inventions and the underlying intellectual property. You will also execute assignments to the Company (or its designee) of the Applications, and give the Company and its attorneys all reasonable assistance (including the giving of testimony) to obtain the Company Inventions and the underlying intellectual property for its benefit, all without additional compensation to you from the Company, but entirely at the Company's expense.

(ii) In addition, the Company Inventions will be deemed "work made for hire", as such term is defined under the copyright law of the United States, on behalf of the Company and you agree that the Company will be the sole owner of the Company Inventions, and all underlying rights therein, in all media now known or hereinafter devised, throughout the universe and in perpetuity without any further obligations or compensation to you. If the Company Inventions, or any portion thereof, are deemed not to be work made for hire, you hereby irrevocably convey, transfer, assign and deliver to the Company, all rights, titles and interests, in all media now known or hereinafter devised, throughout the universe and in perpetuity, in and to the Company Inventions, including without limitation: (a) all of your rights, titles and interests in and to any underlying intellectual property (and all renewals, revivals and extensions thereof) related to the Company Inventions; (b) all rights of any kind or any nature now or hereafter recognized, including without limitation, the unrestricted right to make modifications, adaptations and revisions to the Company Inventions, to exploit and allow others to exploit the Company Inventions; and (c) all rights to sue at law or in equity for any infringement, or other unauthorized use or conduct in derogation of the Company Inventions, known or unknown, prior to the date hereof, including without limitation the right to receive all proceeds and damages therefrom. In addition, you hereby waive any so-called "moral rights" with respect to the Company Inventions. You hereby waive any and all currently existing and future monetary rights in and to the Inventions and all patents and other intellectual property rights that may issue thereon, including, without limitation, any rights that would otherwise accrue to your benefit by virtue of you being an employee of or other service provider to the Company.

(iii) To the extent that you are unable to assign any of your right, title or interest in any Company Invention under applicable law, for any such Company Invention and the underlying intellectual property rights, you hereby grant to the Company an exclusive, irrevocable, perpetual, transferable, worldwide, fully paid license to such Company Invention and the underlying intellectual property, with the right to sublicense, use, modify, create derivative works and otherwise fully exploit such Company Invention and the underlying intellectual property, to assign this license and to exercise all rights and incidents of ownership of the Company Invention.

(iv) To the extent that any of the Company Inventions are derived by, or require use by the Company of, any works, Inventions, or other intellectual property rights that you own, which are not assigned hereby, you hereby grant to the Company an irrevocable, perpetual, transferable, worldwide, non-exclusive, royalty free license, with the right to sublicense, use, modify and create derivative works using such works, Inventions or other intellectual property rights, but only to the extent necessary to permit the Company to fully realize their ownership rights in the Company Inventions.

(h) **Cooperation**. Upon the receipt of notice from the Company (including outside counsel), you agree that while employed by the Company and thereafter, you will respond and provide information with regard to matters in which you have knowledge as a result of your employment with the Company, and will provide reasonable assistance to the Employer and its representatives in defense of any claims that may be made against the Employer, and will assist the Employer in the prosecution of any claims that may be made by the Employer, to the extent that such claims may relate to the period of your employment with the Company (or any predecessor). You agree to promptly inform the Company if you become aware of any lawsuits involving such claims that may be filed or threatened against the Employer. You also agree to promptly inform the Company (to the extent you are legally permitted to do so) if you are asked to assist in any investigation of the Employer (or their actions), regardless of whether a lawsuit or other proceeding has then been filed against the Employer with respect to such investigation, and will not do so unless legally required.

(i) **Return of Property**. On the date of the termination of your employment with the Company for any reason (or at any time prior thereto at the Company's request), you will return all property belonging to the Employer (including, but not limited to, any Employer provided laptops, computers, cell phones, wireless electronic mail devices or other equipment, or documents and property belonging to the Employer).

(j) **Injunctive Relief**. It is further expressly agreed that the Employer will or would suffer irreparable injury if you were to violate the provisions of this paragraph 7 and that the Employer would by reason of such violation be entitled to injunctive relief in a court of appropriate jurisdiction and you further consent and stipulate to the entry of such injunctive relief in such court prohibiting you from violating the provisions of this paragraph 7.

(k) **Former Employers**. You agree not disclose to the Company or use for its benefit any information that, to your knowledge, is proprietary or confidential to any of your former employers, without proper consent from your former employer. You have not signed any non-competition or other contract that prohibits you from being employed by the Company or assigning your works and ideas to the Company.

(l) **Survival of Provisions**. The obligations contained in this paragraph 7 will survive the termination of your employment with the Company and will be fully enforceable thereafter. If it is determined by a court of competent jurisdiction in any state that any restriction in this paragraph 7 is excessive in duration or scope or extends for too long a period of time or over too great a range of activities or in too broad a geographic area or is unreasonable or unenforceable under the laws of that state, it is the intention of the parties that such restriction

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may be modified or amended by the court to render it enforceable to the maximum extent permitted by the law of that state or jurisdiction.

8. **Representation**. You represent and warrant that your execution and delivery of this Letter Agreement and your performing the contemplated services does not and will not conflict with or result in any breach or default under any agreement, contract or arrangement which you are a party to or violate any other legal restriction.

9. **Assignment; Third Party Beneficiaries**. Notwithstanding anything else herein, this Letter Agreement is personal to you and neither the Letter Agreement nor any rights hereunder may be assigned by you. The Company may assign the Letter Agreement to an affiliate or to any acquiror of all or substantially all of the assets of the Company. This Letter Agreement will inure to the benefit of and be binding upon the personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees, legatees and permitted assignees of the parties. You acknowledge that this Letter Agreement is intended to benefit the Company, its shareholders, and its and their parents, affiliates, subsidiaries, divisions, and related companies or entities, now existing or hereafter created. You further acknowledge that the intended beneficiaries of this Letter Agreement are entitled to enforce the provisions of this Letter Agreement by seeking injunctive relief or any other appropriate remedy

10. **Arbitration; Attorneys' Fees**. You agree that all disputes and controversies arising under or in connection with this Letter Agreement, other than seeking injunctive or other equitable relief under paragraph 7(j), will be settled by arbitration conducted before one (1) arbitrator mutually agreed to by the Company and you, sitting in New York, New York or such other location agreed to by you and the Company, in accordance with the National Rules for the Resolution of Employment Disputes of the American Arbitration Association then in effect; provided, however, that if the Company and you are unable to agree on a single arbitrator within 30 days of the demand by another party for arbitration, an arbitrator will be designated by the New York Office of the American Arbitration Association. The determination of the arbitrator will be final and binding on you and the Company. Judgment may be entered on the award of the arbitrator in any court having proper jurisdiction. Each party will bear their own expenses of such arbitration, except that you agree to indemnify the Company for its reasonable attorneys' fees and costs incurred in enforcing the terms of this Agreement should you violate any of its terms.

11. **Governing Law**. This Letter Agreement and any other document or instrument delivered pursuant hereto, and all claims or causes of action that may be based upon, arise out of or relate to this Agreement will be governed by, and construed under and in accordance with, the internal laws of the State of Delaware, without reference to rules relating to conflicts of laws.

12. **Withholding Taxes**. The Company may withhold from any and all amounts payable to you such federal, state and local taxes as may be required to be withheld pursuant to any applicable laws or regulations.

13. **Notices**. All notices and other communications required or permitted hereunder or necessary or convenient in connection herewith shall be in writing and shall be deemed to have been given when hand delivered or three (3) days after being mailed by registered or certified

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mail to you or the Company, as the case may be, at your address set forth above or the Company's address set forth below, or to such other names or addresses as you or the Company, as the case may be, shall designate by notice to each other person entitled to receive notices in the manner specified in this Section (provided that notice of change of address shall be deemed given only when received).

Company notices shall be delivered to:

OptiNose US Inc.
Attn: Peter Miller, Chief Executive Officer
1010 Stony Hill Road

Suite 375
Yardley, PA 19067

With a copy (which shall not constitute notice) to:

Hogan Lovells US LLP
Attn: Kevin C. Clayton, Esq.
555 Thirteenth St., NW
Washington, DC 20004

14. **Entire Agreement; Amendments**. This Letter Agreement and the agreements referenced herein contain the entire agreement of the parties relating to the subject matter hereof, and supersedes in their entirety any and all prior and/or contemporaneous agreements, understandings or representations relating to the subject matter hereof, whether written or oral, including without limitation your offer letter. No amendments, alterations or modifications of this Letter Agreement will be valid unless made in writing and signed by the parties hereto.

15. **Section Headings**. The section headings used in this Letter Agreement are included solely for convenience and will not affect, or be used in connection with, the interpretation of this Letter Agreement.

16. **Severability**. The provisions of this Letter Agreement will be deemed severable and the invalidity of unenforceability of any provision will not affect the validity or enforceability of the other provisions hereof. No failure to exercise, delay in exercising, or single or partial exercise of any right, power or remedy by either party, and no course of dealing between the parties, shall constitute a waiver of, or shall preclude any other or further exercise of, any right, power or remedy.

17. **Counterparts**. This Letter Agreement may be executed in several counterparts (including via facsimile and/or .pdf), each of which will be deemed to be an original but all of which together will constitute one and the same instruments.

18. **Intent to Be Bound**. You intend to be legally bound by this Agreement, and you intend this to be a sealed instrument.

19. **Section 409A**. The parties hereto intend that the payments and benefits provided for in this Letter Agreement either be exempt from Section 409A of the Internal Revenue Code

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of 1986, as amended ("Section 409A"), or be provided for in a manner that complies with Section 409A of the Code. Neither of the parties hereto, individually or in combination, may accelerate any payment or benefit that is subject to Section 409A, except in compliance with Section 409A and the provisions of this Letter Agreement, and no amount that is subject to Section 409A shall be paid prior to the earliest date on which it may be paid without violating Section 409A. To the extent that any provision hereof is modified in order to comply with Section 409A, such modification shall be made in good faith and shall, to the maximum extent reasonably possible, maintain the original intent and economic benefit to you and the Company of the applicable provision without violating the provisions of Section 409A. In no event whatsoever shall the Company be liable for any additional tax, interest or penalty that may be imposed on you by Section 409A or damages for failing to comply with Section 409A. For purposes of Section 409A, your right to receive installment payments pursuant to this Letter Agreement including, without limitation, each severance payment and COBRA continuation reimbursement shall be treated as a right to receive a series of separate and distinct payments. You will be deemed to have terminated employment for purposes of determining the timing of any payments or benefits hereunder that are classified as deferred compensation only upon a "separation from service" within the meaning of Section 409A. Any amount that you are entitled to be reimbursed under this Letter Agreement will be reimbursed to you as promptly as practical and in any event not later than the last day of the calendar year after the calendar year in which the expenses are incurred, any right to reimbursement or in kind benefits will not be subject to liquidation or exchange for another benefit, and the amount of the expenses eligible for reimbursement during any taxable year will not affect the amount of expenses eligible for reimbursement in any other taxable year. Whenever a payment under this Letter Agreement specifies a payment period with reference to a number of days (e.g., "payment shall be made within thirty (30) days following the date of termination"), the actual date of payment within the specified period shall be within the sole discretion of the Company.

[Signature Page Follows]

We hope that you find the foregoing terms and conditions acceptable. Please indicate your agreement with the terms and conditions set forth in this Letter Agreement by signing the enclosed duplicate original of this Letter Agreement and returning it to the Company.

We look forward to your employment with the Company.

Very truly yours,

OptiNose US, Inc.

By: /s/ Peter K. Miller
Name: Peter K. Miller
Title: President & Chief Operating Officer

Accepted and Agreed:

/s/ Thomas E. Gibbs

Exhibit 10.5

OptiNose US, Inc.

January 13, 2017

Keith Goldan
505 Langford Drive
Downingtown, PA 19335

Dear Keith:

The purpose of this letter (this "Letter Agreement") is to acknowledge and set forth the terms and conditions of your employment as Chief Financial Officer of OptiNose US, Inc. (the "Company").

1. **Duties and Responsibilities**. While you are employed by the Company, you will serve as Chief Financial Officer of the Company and will report to the Chief Executive Officer of the Company. You will have such duties and responsibilities that are commensurate with your position and such other duties and responsibilities as are from time to time assigned to you by the Chief Executive Officer, the President & Chief Operating Officer or the board of directors of the Company (the "Board"). While you are employed by the Company, you will devote your full business time, energy and skill to the performance of your duties and responsibilities hereunder. You will not be permitted to engage in other activities that interfere with the performance by you of your duties under this Letter Agreement, conflict with the business of the Company or violate any of the provisions of Section 7 herein, such as membership on boards of other entities. Your place of employment will be the Company's offices in the Yardley, Pennsylvania metropolitan area.

2. **Base Salary**. While you are employed by the Company, the Company will pay you a base annual salary ("Base Salary") at the rate of $350,000 per year, paid in accordance with the usual payroll practices of the Company. Your Base Salary may be reviewed periodically by the Chief Executive Officer, President & Chief Operating Officer, and/or the Board (or a committee thereof).

3. **Discretionary Bonus**. You will be eligible to receive an annual target cash bonus of 40% of your Base Salary (pro-rated for any portion of a year during which you are not employed by OptiNose) at the Board of Director's discretion and contingent upon attainment of certain Company milestones and/or individual objectives as determined by the Board of Directors. Payment of such bonus is contingent upon continued employment with the Company at the time of payment.

4. **Options**.

(a) **Option Grants**. Subject to Board approval and, if necessary, stockholder approval, the Company shall grant to you under the 2010 Stock Incentive Plan of OptiNose, Inc., as amended from time to time (the "Plan"), and subject to the terms of the Grant Agreement (as defined below):

(i) an option to purchase 55,000 shares of OptiNose, Inc.'s common stock at an exercise price equal to the fair market value of such common stock on the date of grant (the "Option Grant"), and

(b) **Vesting**. The Option Grant will vest and become exercisable over a period of 4 years provided that you have been continuously employed by the Company up to and on each such vesting date. Acceleration of vesting with respect to the Option Grant, if any, on a change of control will be governed by the applicable Grant Agreement.

(c) **Form of Grant**. The Option Grant will be granted pursuant to and, to the extent not contrary to the terms of this Letter Agreement, will be subject to the terms and conditions imposed under the Plan and the grant agreement ("Grant Agreement") to be entered into between you and OptiNose, Inc. which will include, without limitation, provisions relating to limits on transfer, post-termination exercise periods and other provisions as determined by OptiNose, Inc.

5. **Benefits and Fringes**.

(a) **General**. While you are employed by the Company, you will be entitled to such benefits and fringes, if any, as are generally provided from time to time by the Company to its employees, subject to the satisfaction of any eligibility requirements.

(b) **Vacation**. You will also be entitled to annual paid vacation in accordance with the Company's vacation policies in effect from time to time, which may be taken at such times as you elect with due regard to the needs of the Company.

(c) **Reimbursement of Business Expenses**. Upon presentation of appropriate documentation, you will be reimbursed in accordance with the Company's expense reimbursement policy for all reasonable and necessary business expenses incurred in connection with the performance of your duties and responsibilities hereunder.

6. **Termination of Employment**.

(a) At all times, your employment with the Company is "at-will" which means that employment with the Company may be terminated at any time by either you or the Company with or without "Cause."

(b) **Termination upon Death**. If you die, then your employment with the Company shall terminate as of the date of your death, at which time all of your rights to compensation and benefits under Sections 2-5 herein or otherwise shall immediately terminate, except that your heirs, personal representatives or estate shall be entitled to: (a) any unpaid portion of your compensation set forth in Section 2 above for periods before the date of termination; (b) any accrued benefits up to the date of termination; and (c) any benefits that are required to be provided to your dependents after the date of termination under the general provisions of the employee benefit plans in which you participated as of the date of your death.

(c) **Termination upon Disability**. "Disability" means any physical or mental incapacity, illness or infirmity that prevents or significantly restricts you from performing the

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normal duties of a business executive on a full-time basis. If you suffer a Disability and the Disability continues for more than three months, then the Company shall have the right to terminate your employment upon written notice to you, at which time all of your rights to compensation and benefits under Sections 2-5 herein or otherwise shall immediately terminate, except that you shall be entitled to (a) any unpaid portion of your compensation set forth in Section 2 above for periods before the date of termination; (b) any accrued benefits up to the date of termination; and (c) any benefits that are required to be provided after the date of termination under the general provisions of the employee benefit plans in which you participated as of the date of termination.

(d) **Termination by the Company for Cause**. The Company may, upon written notice to you, immediately terminate your employment for Cause. "Cause" shall exist upon (i) your breach of any fiduciary duty or material legal or contractual obligation to the Company or any of its affiliates (including, without limitation, pursuant to a Company or affiliate policy or the restrictive covenants set forth in Section 7 of this Letter Agreement or any other applicable restrictive covenants between you and the Company or any of its affiliates), or the Company's direct or indirect equity holders, (ii) your failure to follow the reasonable instructions of the Chief Executive Officer, the President & Chief Operating Officer, or the Board (other than as a result of total or partial incapacity due to physical or mental illness), which breach, if curable, is not cured within 30 days after notice to you specifying in reasonable detail the nature of such breach, or, if cured, recurs within 90 business days, (iii) your gross negligence, willful misconduct, fraud, insubordination, acts of dishonesty or conflict of interest relating to the Company or any of its affiliates or direct or indirect equity holders, or (iv) your commission of any misdemeanor which has a material impact. on the affairs, business or reputation of the Company or any of its affiliates or your indictment for, or plea of nolo contendere to, a crime constituting a felony under the laws of the United States or any state thereof. Upon a termination of your employment for Cause, all of your rights to compensation and benefits under Section 2-5 of this Agreement or otherwise shall immediately terminate, except that you shall be entitled to (x) any unpaid portion of your compensation under Section 2 of this Agreement for periods before the date of the first occurrence of the circumstances constituting cause for termination under this provision; (y) any accrued benefits up to such date; and (z) any benefits that are required to be provided after such date under the general provisions of the employee benefit plans in which you participated as of the date of termination.

(e) **Termination without Cause**. The Company may, upon written notice to you, terminate your employment without Cause. Upon a termination of your employment without Cause, if you continue to comply with your obligations under Section 7, the Company shall continue to pay to you, for 3 months after the last day of your employment with the Company, compensation at the rate in effect on the date of termination, and the Company shall continue to provide to you, for 3 months after the last day of your employment with the Company, the benefits of the standard group medical, vision and dental plans maintained or adopted by the Company on substantially the same terms as such benefits are provided to employees during such period.

(f) Payment to you of any amounts otherwise due hereunder upon termination shall be conditioned on execution of a general release by you in favor of the Company and its affiliates which may be amended from time to time, and the lapse of any revocation period with

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the release not having been revoked. Such release shall be provided to you within 3 days of termination of employment and executed by you within 30 days after delivery. Any payments that would have otherwise been made prior to execution, delivery and lapse of any revocation period shall be made in a lump sum at the end of any revocation period.

7. **Covenants**.

(a) **Non-Competition**. So long as you are employed by the Company under this Letter Agreement and for the 6-month period following the termination of your employment with the Company for any reason (the "Restricted Period"), you agree that you will not, directly or indirectly, without the prior written consent of the Company, engage in Competition with the Company or any of its affiliates (collectively, the "Employer"). "Competition" means participating, directly or indirectly, as an individual proprietor, partner, stockholder, officer, employee, director, joint venturer, investor, lender, consultant or in any other capacity whatsoever in any business or venture that competes with any business that the Employer is engaged in as of the date of your termination of employment with the Company or is actively planning to engage in as of the date of your termination of employment with the Company. Notwithstanding the foregoing, after the termination of your employment, employment by or consultation for a publicly traded company that derives less than five percent (5%) of its net revenues from activities that compete with business that the Employer engages in, or are actively planning to engage in, shall not constitute Competition so long as you do not personally provide employment or consulting services to the business segment of such publicly traded company that engages in such competitive activities.

(b) **Confidentiality**. You agree that you will not, directly or indirectly, use, make available, sell, disclose or otherwise communicate to any person or entity, other than in the course of your assigned duties hereunder and for the benefit of the Employer, either while you are employed by the Company hereunder or at any time thereafter, any business and technical information or trade secrets, nonpublic, proprietary or confidential information, knowledge or data relating to the Employer whether the foregoing will have been obtained by you during your employment hereunder or otherwise. The foregoing will not apply to information that (i) was known to the public prior to its disclosure to you; (ii) becomes generally known to the public or in the Employer's industry subsequent to disclosure to you through no wrongful act by you or any of your representatives; or (iii) you are required to disclose by applicable law, regulation or legal process (provided that you provide the Company with prior notice of the contemplated disclosure and cooperate with the Company in seeking a protective order or other appropriate protection of such information).

(c) **Non-Solicitation of Customers**. You agree that during the Restricted Period, you will not, directly or indirectly, solicit or influence, or attempt to solicit or influence, customers of the Employer to purchase goods or services then sold by the Employer from any other person or entity.

(d) **Non-Solicitation of Suppliers**. You agree that during the Restricted Period, you will not, directly or indirectly, solicit or influence, or attempt to solicit or influence, the Company's suppliers to provide goods or services then provided to the Employer to any other person or entity in Competition with the Employer.

(e) **Non-Solicitation of Employees**. You recognize that you will possess confidential information about other employees of the Employer relating to their education, experience, skills, abilities, compensation and benefits, and inter-personal relationships with customers of the Employer. You recognize that the information you possess and will possess about these other employees is not generally known, is of substantial value to the Employer in developing its business and in securing and retaining customers, and has been and will be acquired by you because of your business position with the Employer. You agree that, during the Restricted Period, you will not, (x) directly or indirectly, individually or on behalf of any other person or entity solicit or recruit any employee of the Employer to leave such employment for the purpose of being employed by, or rendering services to, you or any person or entity unaffiliated with the Employer, or (y) convey any such confidential information or trade secrets about other employees of the Employer to any person or entity other than in the course of your assigned duties hereunder and for the benefit of the Employer.

(f) **Non-Disparagement**. You agree that you will not, nor will you induce others to, Disparage the Employer or any of their past or present officers, directors, employees or products. "Disparage" will mean making comments or statements to the press, the Employer's employees or any individual or entity with whom the Employer has a business relationship that would adversely affect in any manner: (i) the conduct of the business of the Employer (including, without limitation, any products or business plans or prospects); or (ii) the business reputation of the Employer, or any of their products, or their past or present officers, directors or employees.

(g) **Inventions**.

(i) You acknowledge and agree that all trade secrets, mask works, concepts, drawings, materials, documentation, procedures, diagrams, specifications, models, processes, formulae, source and object codes, data, programs, know-how, designs, techniques, ideas, methods, inventions, discoveries, improvements, work products, developments or other works of authorship ("Inventions"), whether patentable or unpatentable, (x) that relate to your work with the Company, made, developed or conceived by you, solely or jointly with others or with the use of any of the Company's equipment, supplies, facilities or trade secrets or (y) suggested by any work that you perform in connection with the Company, either while performing your duties with the Company or on your own time, but only insofar as the Inventions are related to your work as an employee of the Company (collectively, "Company Inventions"), will belong exclusively to the Company (or its designee), whether or not patent applications are filed thereon. You will keep full and complete written records (the "Records"), in the manner prescribed by the Company, of all Company Inventions, and will promptly disclose all Company Inventions completely and in writing to the Company. The Records will be the sole and exclusive property of the Company, and you will surrender them upon the termination of your employment, or upon the Company's request. You hereby assign to the Company the Company Inventions including all rights in and to any related patents and other intellectual property that may issue thereon in any and all countries, whether during or subsequent to the term of this Letter Agreement, together with the right to file, in your name or in the name of the Company (or its designee), applications for patents and equivalent rights (the "Applications"). You will, at any time during and subsequent to the term of this Letter Agreement, make such applications, sign such papers, take all rightful oaths, and perform all acts as may be requested from time to time by the Company with respect to the Company Inventions

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and the underlying intellectual property. You will also execute assignments to the Company (or its designee) of the Applications, and give the Company and its attorneys all reasonable assistance (including the giving of testimony) to obtain the Company Inventions and the underlying intellectual property for its benefit, all without additional compensation to you from the Company, but entirely at the Company's expense.

(ii) In addition, the Company Inventions will be deemed "work made for hire", as such term is defined under the copyright law of the United States, on behalf of the Company and you agree that the Company will be the sole owner of the Company Inventions, and all underlying rights therein, in all media now known or hereinafter devised, throughout the universe and in perpetuity without any further obligations or compensation to you. If the Company Inventions, or any portion thereof, are deemed not to be work made for hire, you hereby irrevocably convey, transfer, assign and deliver to the Company, all rights, titles and interests, in all media now known or hereinafter devised, throughout the universe and in perpetuity, in and to the Company Inventions, including without limitation: (a) all of your rights, titles and interests in and to any underlying intellectual property (and all renewals, revivals and extensions thereof) related to the Company Inventions; (b) all rights of any kind or any nature now or hereafter recognized, including without limitation, the unrestricted right to make modifications, adaptations and revisions to the Company Inventions, to exploit and allow others to exploit the Company Inventions; and (c) all rights to sue at law or in equity for any infringement, or other unauthorized use or conduct in derogation of the Company Inventions, known or unknown, prior to the date hereof, including without limitation the right to receive all proceeds and damages therefrom. In addition, you hereby waive any so-called "moral rights" with respect to the Company Inventions. You hereby waive any and all currently existing and future monetary rights in and to the Inventions and all patents and other intellectual property rights that may issue thereon, including, without limitation, any rights that would otherwise accrue to your benefit by virtue of you being an employee of or other service provider to the Company.

(iii) To the extent that you are unable to assign any of your right, title or interest in any Company Invention under applicable law, for any such Company Invention and the underlying intellectual property rights, you hereby grant to the Company an exclusive, irrevocable, perpetual, transferable, worldwide, fully paid license to such Company Invention and the underlying intellectual property, with the right to sublicense, use, modify, create derivative works and otherwise fully exploit such Company Invention and the underlying intellectual property, to assign this license and to exercise all rights and incidents of ownership of the Company Invention.

(iv) To the extent that any of the Company Inventions are derived by, or require use by the Company of, any works, Inventions, or other intellectual property rights that you own, which are not assigned hereby, you hereby grant to the Company an irrevocable, perpetual, transferable, worldwide, non-exclusive, royalty free license, with the right to sublicense, use, modify and create derivative works using such works, Inventions or other intellectual property rights, but only to the extent necessary to permit the Company to fully realize their ownership rights in the Company Inventions.

(h) **Cooperation**. Upon the receipt of notice from the Company (including outside counsel), you agree that while employed by the Company and thereafter, you will respond and provide information with regard to matters in which you have knowledge as a result of your employment with the Company, and will provide reasonable assistance to the Employer and its representatives in defense of any claims that may be made against the Employer, and will assist the Employer in the prosecution of any claims that may be made by the Employer, to the extent that such claims may relate to the period of your employment with the Company (or any predecessor). You agree to promptly inform the Company if you become aware of any lawsuits involving such claims that may be filed or threatened against the Employer. You also agree to promptly inform the Company (to the extent you are legally permitted to do so)

if you are asked to assist in any investigation of the Employer (or their actions), regardless of whether a lawsuit or other proceeding has then been filed against the Employer with respect to such investigation, and will not do so unless legally required.

(i) **Return of Property**. On the date of the termination of your employment with the Company for any reason (or at any time prior thereto at the Company's request), you will return all property belonging to the Employer (including, but not limited to, any Employer provided laptops, computers, cell phones, wireless electronic mail devices or other equipment, or documents and property belonging to the Employer).

(j) **Injunctive Relief**. It is further expressly agreed that the Employer will or would suffer irreparable injury if you were to violate the provisions of this paragraph 7 and that the Employer would by reason of such violation be entitled to injunctive relief in a court of appropriate jurisdiction and you further consent and stipulate to the entry of such injunctive relief in such court prohibiting you from violating the provisions of this paragraph 7.

(k) **Former Employers**. You agree not disclose to the Company or use for its benefit any information that, to your knowledge, is proprietary or confidential to any of your former employers, without proper consent from your former employer. You have not signed any non-competition or other contract that prohibits you from being employed by the Company or assigning your works and ideas to the Company.

(l) **Survival of Provisions**. The obligations contained in this paragraph 7 will survive the termination of your employment with the Company and will be fully enforceable thereafter. If it is determined by a court of competent jurisdiction in any state that any restriction in this paragraph 7 is excessive in duration or scope or extends for too long a period of time or over too great a range of activities or in too broad a geographic area or is unreasonable or unenforceable under the laws of that state, it is the intention of the parties that such restriction may be modified or amended by the court to render it enforceable to the maximum extent permitted by the law of that state or jurisdiction.

8. **Representation**. You represent and warrant that your execution and delivery of this Letter Agreement and your performing the contemplated services does not and will not conflict with or result in any breach or default under any agreement, contract or arrangement which you are a party to or violate any other legal restriction.

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9. **Assignment; Third Party Beneficiaries**. Notwithstanding anything else herein, this Letter Agreement is personal to you and neither the Letter Agreement nor any rights hereunder may be assigned by you. The Company may assign the Letter Agreement to an affiliate or to any acquiror of all or substantially all of the assets of the Company. This Letter Agreement will inure to the benefit of and be binding upon the personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees, legatees and permitted assignees of the parties. You acknowledge that this Letter Agreement is intended to benefit the Company, its shareholders, and its and their parents, affiliates, subsidiaries, divisions, and related companies or entities, now existing or hereafter created. You further acknowledge that the intended beneficiaries of this Letter Agreement are entitled to enforce the provisions of this Letter Agreement by seeking injunctive relief or any other appropriate remedy

10. **Arbitration; Attorneys' Fees**. You agree that all disputes and controversies arising under or in connection with this Letter Agreement, other than seeking injunctive or other equitable relief under paragraph 7(j), will be settled by arbitration conducted before one (1) arbitrator mutually agreed to by the Company and you, sitting in New York, New York or such other location agreed to by you and the Company, in accordance with the National Rules for the Resolution of Employment Disputes of the American Arbitration Association then in effect; provided, however, that if the Company and you are unable to agree on a single arbitrator within 30 days of the demand by another party for arbitration, an arbitrator will be designated by the New York Office of the American Arbitration Association. The determination of the arbitrator will be final and binding on you and the Company. Judgment may be entered on the award of the arbitrator in any court having proper jurisdiction. Each party will bear their own expenses of such arbitration, except that you agree to indemnify the Company for its reasonable attorneys' fees and costs incurred in enforcing the terms of this Agreement should you violate any of its terms.

11. **Governing Law**. This Letter Agreement and any other document or instrument delivered pursuant hereto, and all claims or causes of action that may be based upon, arise out of or relate to this Agreement will be governed by, and construed under and in accordance with, the internal laws of the State of Delaware, without reference to rules relating to conflicts of laws.

12. **Withholding Taxes**. The Company may withhold from any and all amounts payable to you such federal, state and local taxes as may be required to be withheld pursuant to any applicable laws or regulations.

13. **Notices**. All notices and other communications required or permitted hereunder or necessary or convenient in connection herewith shall be in writing and shall be deemed to have been given when hand delivered or three (3) days after being mailed by registered or certified mail to you or the Company, as the case may be, at your address set forth above or the Company's address set forth below, or to such other names or addresses as you or the Company, as the case may be, shall designate by notice to each other person entitled to receive notices in the manner specified in this Section (provided that notice of change of address shall be deemed given only when received).

Company notices shall be delivered to:

OptiNose US Inc.
Attn: Peter Miller, Chief Executive Officer
1020 Stony Hill Road
Suite 300
Yardley, PA 19067

With a copy (which shall not constitute notice) to:

Hogan Lovells US LLP
Attn: Kevin C. Clayton, Esq.
555 Thirteenth St., NW
Washington, DC 20004

14. **Entire Agreement; Amendments**. This Letter Agreement and the agreements referenced herein contain the entire agreement of the parties relating to the subject matter hereof, and supersedes in their entirety any and all prior and/or contemporaneous agreements, understandings or representations relating to the subject matter hereof, whether written or oral, including without limitation your offer letter. No amendments, alterations or modifications of this Letter Agreement will be valid unless made in writing and signed by the parties hereto.

15. **Section Headings**. The section headings used in this Letter Agreement are included solely for convenience and will not affect, or be used in connection with, the interpretation of this Letter Agreement.

16. **Severability**. The provisions of this Letter Agreement will be deemed severable and the invalidity of unenforceability of any provision will not affect the validity or enforceability of the other provisions hereof. No failure to exercise, delay in exercising, or single or partial exercise of any right, power or remedy by either party, and no course of dealing between the parties, shall constitute a waiver of, or shall preclude any other or further exercise of, any right, power or remedy.

17. **Counterparts**. This Letter Agreement may be executed in several counterparts (including via facsimile and/or .pdf), each of which will be deemed to be an original but all of which together will constitute one and the same instruments.

18. **Intent to Be Bound**. You intend to be legally bound by this Agreement, and you intend this to be a sealed instrument.

19. **Section 409A**. The parties hereto intend that the payments and benefits provided for in this Letter Agreement either be exempt from Section 409A of the Internal Revenue Code of 1986, as amended ("Section 409A"), or be provided for in a manner that complies with Section 409A of the Code. Neither of the parties hereto, individually or in combination, may accelerate any payment or benefit that is subject to Section 409A, except in compliance with Section 409A and the provisions of this Letter Agreement, and no amount that is subject to Section 409A shall be paid prior to the earliest date on which it may be paid without violating Section 409A. To the extent that any provision hereof is modified in order to comply with

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Section 409A, such modification shall be made in good faith and shall, to the maximum extent reasonably possible, maintain the original intent and economic benefit to you and the Company of the applicable provision without violating the provisions of Section 409A. In no event whatsoever shall the Company be liable for any additional tax, interest or penalty that may be imposed on you by Section 409A or damages for failing to comply with Section 409A. For purposes of Section 409A, your right to receive installment payments pursuant to this Letter Agreement including, without limitation, each severance payment and COBRA continuation reimbursement shall be treated as a right to receive a series of separate and distinct payments. You will be deemed to have terminated employment for purposes of determining the timing of any payments or benefits hereunder that are classified as deferred compensation only upon a "separation from service" within the meaning of Section 409A. Any amount that you are entitled to be reimbursed under this Letter Agreement will be reimbursed to you as promptly as practical and in any event not later than the last day of the calendar year after the calendar year in which the expenses are incurred, any right to reimbursement or in kind benefits will not be subject to liquidation or exchange for another benefit, and the amount of the expenses eligible for reimbursement during any taxable year will not affect the amount of expenses eligible for reimbursement in any other taxable year. Whenever a payment under this Letter Agreement specifies a payment period with reference to a number of days (e.g., "payment shall be made within thirty (30) days following the date of termination"), the actual date of payment within the specified period shall be within the sole discretion of the Company.

[Signature Page Follows]

We hope that you find the foregoing terms and conditions acceptable. Please indicate your agreement with the terms and conditions set forth in this Letter Agreement by signing the enclosed duplicate original of this Letter Agreement and returning it to the Company.

We look forward to your employment with the Company.

Very truly yours,

OptiNose US, Inc.

By: /s/ Ramy Mahmoud
Name: Ramy A. Mahmoud, MD, MPH, FACP
Title: President & Chief Operating Officer

Accepted and Agreed:

/s/ Keith Goldan
Keith Goldan

Exhibit 10.6

OptiNose US, Inc.

January 13, 2017

Michael Marino, Esq.
138 Inverness Drive
Blue Bell, PA 19422

Dear Michael:

The purpose of this letter (this "Letter Agreement") is to acknowledge and set forth the terms and conditions of your employment as Chief Legal Officer & Corporate Secretary of OptiNose US, Inc. (the "Company").

1. **Duties and Responsibilities**. While you are employed by the Company, you will serve as Chief Legal Officer & Corporate Secretary of the Company and will report to the Chief Executive Officer of the Company. You will have such duties and responsibilities that are commensurate with your position and such other duties and responsibilities as are from time to time assigned to you by the Chief Executive Officer, the President & Chief Operating Officer or the board of directors of the Company (the "Board"). While you are employed by the Company, you will devote your full business time, energy and skill to the performance of your duties and responsibilities hereunder. You will not be permitted to engage in other activities that interfere with the performance by you of your duties under this Letter Agreement, conflict with the business of the Company or violate any of the provisions of Section 7 herein, such as membership on boards of other entities. Your place of employment will be the Company's offices in the Yardley, Pennsylvania metropolitan area.

2. **Base Salary**. While you are employed by the Company, the Company will pay you a base annual salary ("Base Salary") at the rate of $335,000 per year, paid in accordance with the usual payroll practices of the Company. Your Base Salary may be reviewed periodically by the Chief Executive Officer, President & Chief Operating Officer, and/or the Board (or a committee thereof).

3. **Discretionary Bonus**. You will be eligible to receive an annual target cash bonus of 40% of your Base Salary (pro-rated for any portion of a year during which you are not employed by OptiNose) at the Board of Director's discretion and contingent upon attainment of certain Company milestones and/or individual objectives as determined by the Board of Directors. Payment of such bonus is contingent upon continued employment with the Company at the time of payment.

4. **Options**.

(a) **Option Grants**. Subject to Board approval and, if necessary, stockholder approval, the Company shall grant to you under the 2010 Stock Incentive Plan of OptiNose, Inc., as amended from time to time (the "Plan"), and subject to the terms of the Grant Agreement (as defined below):

(i) an option to purchase 50,000 shares of OptiNose, Inc.'s common stock at an exercise price equal to the fair market value of such common stock on the date of grant (the "Option Grant"), and

(b) **Vesting**. The Option Grant will vest and become exercisable over a period of 4 years provided that you have been continuously employed by the Company up to and on each such vesting date. Acceleration of vesting with respect to the Option Grant, if any, on a change of control will be governed by the applicable Grant Agreement.

(c) **Form of Grant**. The Option Grant will be granted pursuant to and, to the extent not contrary to the terms of this Letter Agreement, will be subject to the terms and conditions imposed under the Plan and the grant agreement ("Grant Agreement") to be entered into between you and OptiNose, Inc. which will include, without limitation, provisions relating to limits on transfer, post-termination exercise periods and other provisions as determined by OptiNose, Inc.

5. **Benefits and Fringes**.

(a) **General**. While you are employed by the Company, you will be entitled to such benefits and fringes, if any, as are generally provided from time to time by the Company to its employees, subject to the satisfaction of any eligibility requirements.

(b) **Vacation**. You will also be entitled to annual paid vacation in accordance with the Company's vacation policies in effect from time to time, which may be taken at such times as you elect with due regard to the needs of the Company.

(c) **Reimbursement of Business Expenses**. Upon presentation of appropriate documentation, you will be reimbursed in accordance with the Company's expense reimbursement policy for all reasonable and necessary business expenses incurred in connection with the performance of your duties and responsibilities hereunder.

6. **Termination of Employment**.

(a) At all times, your employment with the Company is "at-will" which means that employment with the Company may be terminated at any time by either you or the Company with or without "Cause."

(b) **Termination upon Death**. If you die, then your employment with the Company shall terminate as of the date of your death, at which time all of your rights to compensation and benefits under Sections 2-5 herein or otherwise shall immediately terminate, except that your heirs, personal representatives or estate shall be entitled to: (a) any unpaid portion of your compensation set forth in Section 2 above for periods before the date of termination; (b) any accrued benefits up to the date of termination; and (c) any benefits that are required to be provided to your dependents after the date of termination under the general provisions of the employee benefit plans in which you participated as of the date of your death.

(c) **Termination upon Disability**. "Disability" means any physical or mental incapacity, illness or infirmity that prevents or significantly restricts you from performing the

normal duties of a business executive on a full-time basis. If you suffer a Disability and the Disability continues for more than three months, then the Company shall have the right to terminate your employment upon written notice to you, at which time all of your rights to compensation and benefits under Sections 2-5 herein or otherwise shall immediately terminate, except that you shall be entitled to (a) any unpaid portion of your compensation set forth in Section 2 above for periods before the date of termination; (b) any accrued benefits up to the date of termination; and (c) any benefits that are required to be provided after the date of termination under the general provisions of the employee benefit plans in which you participated as of the date of termination.

(d) **Termination by the Company for Cause**. The Company may, upon written notice to you, immediately terminate your employment for Cause. "Cause" shall exist upon (i) your breach of any fiduciary duty or material legal or contractual obligation to the Company or any of its affiliates (including, without limitation, pursuant to a Company or affiliate policy or the restrictive covenants set forth in Section 7 of this Letter Agreement or any other applicable restrictive covenants between you and the Company or any of its affiliates), or the Company's direct or indirect equity holders, (ii) your failure to follow the reasonable instructions of the Chief Executive Officer, the President & Chief Operating Officer, or the Board (other than as a result of total or partial incapacity due to physical or mental illness), which breach, if curable, is not cured within 30 days after notice to you specifying in reasonable detail the nature of such breach, or, if cured, recurs within 90 business days, (iii) your gross negligence, willful misconduct, fraud, insubordination, acts of dishonesty or conflict of interest relating to the Company or any of its affiliates or direct or indirect equity holders, or (iv) your commission of any misdemeanor which has a material impact on the affairs, business or reputation of the Company or any of its affiliates or your indictment for, or plea of nolo contendere to, a crime constituting a felony under the laws of the United States or any state thereof. Upon a termination of your employment for Cause, all of your rights to compensation and benefits under Section 2-5 of this Agreement or otherwise shall immediately terminate, except that you shall be entitled to (x) any unpaid portion of your compensation under Section 2 of this Agreement for periods before the date of the first occurrence of the circumstances constituting cause for termination under this provision; (y) any accrued benefits up to such date; and (z) any benefits that are required to be provided after such date under the general provisions of the employee benefit plans in which you participated as of the date of termination.

(e) **Termination without Cause**. The Company may, upon written notice to you, terminate your employment without Cause. Upon a termination of your employment without Cause, if you continue to comply with your obligations under Section 7, the Company shall continue to pay to you, for 3 months after the last day of your employment with the Company, compensation at the rate in effect on the date of termination, and the Company shall continue to provide to you, for 3 months after the last day of your employment with the Company, the benefits of the standard group medical, vision and dental plans maintained or adopted by the Company on substantially the same terms as such benefits are provided to employees during such period.

(f) Payment to you of any amounts otherwise due hereunder upon termination shall be conditioned on execution of a general release by you in favor of the Company and its affiliates which may be amended from time to time, and the lapse of any revocation period with

the release not having been revoked. Such release shall be provided to you within 3 days of termination of employment and executed by you within 30 days after delivery. Any payments that would have otherwise been made prior to execution, delivery and lapse of any revocation period shall be made in a lump sum at the end of any revocation period.

7. **Covenants**.

(a) **Non-Competition**. So long as you are employed by the Company under this Letter Agreement and for the 6-month period following the termination of your employment with the Company for any reason (the "Restricted Period"), you agree that you will not, directly or indirectly, without the prior written consent of the Company, engage in Competition with the Company or any of its affiliates (collectively, the "Employer"). "Competition" means participating, directly or indirectly, as an individual proprietor, partner, stockholder, officer, employee, director, joint venturer, investor, lender, consultant or in any other capacity whatsoever in any business or venture that competes with any business that the Employer is engaged in as of the date of your termination of employment with the Company or is actively planning to engage in as of the date of your termination of employment with the Company. Notwithstanding the foregoing, after the termination of your employment, employment by or consultation for a publicly traded company that derives less than five percent (5%) of its net revenues from activities that compete with business that the Employer engages in, or are actively planning to engage in, shall not constitute Competition so long as you do not personally provide employment or consulting services to the business segment of such publicly traded company that engages in such competitive activities.

(b) **Confidentiality**. You agree that you will not, directly or indirectly, use, make available, sell, disclose or otherwise communicate to any person or entity, other than in the course of your assigned duties hereunder and for the benefit of the Employer, either while you are employed by the Company hereunder or at any time thereafter, any business and technical information or trade secrets, nonpublic, proprietary or confidential information, knowledge or data relating to the Employer whether the foregoing will have been obtained by you during your employment hereunder or otherwise. The foregoing will not apply to information that (i) was known to the public prior to its disclosure to you; (ii) becomes generally known to the public or in the Employer's industry subsequent to disclosure to you through no wrongful act by you or any of your representatives; or (iii) you are required to disclose by applicable law, regulation or legal process (provided that you provide the Company with prior notice of the contemplated disclosure and cooperate with the Company in seeking a protective order or other appropriate protection of such information).

(c) **Non-Solicitation of Customers**. You agree that during the Restricted Period, you will not, directly or indirectly, solicit or influence, or attempt to solicit or influence, customers of the Employer to purchase goods or services then sold by the Employer from any other person or entity.

(d) **Non-Solicitation of Suppliers**. You agree that during the Restricted Period, you will not, directly or indirectly, solicit or influence, or attempt to solicit or influence, the Company's suppliers to provide goods or services then provided to the Employer to any other person or entity in Competition with the Employer.

(e) **Non-Solicitation of Employees**. You recognize that you will possess confidential information about other employees of the Employer relating to their education, experience, skills, abilities, compensation and benefits, and inter-personal relationships with customers of the Employer. You recognize that the information you possess and will possess about these other employees is not generally known, is of substantial value to the Employer in developing its business and in securing and retaining customers, and has been and will be acquired by you because of your business position with the Employer. You agree that, during the Restricted Period, you will not, (x) directly or indirectly, individually or on behalf of any other person or entity solicit or recruit any employee of the Employer to leave such employment for the purpose of being employed by, or rendering services to, you or any person or entity unaffiliated with the Employer, or (y) convey any such confidential information or trade secrets about other employees of the Employer to any person or entity other than in the course of your assigned duties hereunder and for the benefit of the Employer.

(f) **Non-Disparagement**. You agree that you will not, nor will you induce others to, Disparage the Employer or any of their past or present officers, directors, employees or products. "Disparage" will mean making comments or statements to the press, the Employer's employees or any individual or entity with whom the Employer has a business relationship that would adversely affect in any manner: (i) the conduct of the business of the Employer (including, without limitation, any products or business plans or prospects); or (ii) the business reputation of the Employer, or any of their products, or their past or present officers, directors or employees.

(g) **Inventions**.

(i) You acknowledge and agree that all trade secrets, mask works, concepts, drawings, materials, documentation, procedures, diagrams, specifications, models, processes, formulae, source and object codes, data, programs, know-how, designs, techniques, ideas, methods, inventions, discoveries, improvements, work products, developments or other works of authorship ("Inventions"), whether patentable or unpatentable, (x) that relate to your work with the Company, made, developed or conceived by you, solely or jointly with others or with the use of any of the Company's equipment, supplies, facilities or trade secrets or (y) suggested by any work that you perform in connection with the Company, either while performing your duties with the Company or on your own time, but only insofar as the Inventions are related to your work as an employee of the Company (collectively, "Company Inventions"), will belong exclusively to the Company (or its designee), whether or not patent applications are filed thereon. You will keep full and complete written records (the "Records"), in the manner prescribed by the Company, of all Company Inventions, and will promptly disclose all Company Inventions completely and in writing to the Company. The Records will be the sole and exclusive property of the Company, and you will surrender them upon the termination of your employment, or upon the Company's request. You hereby assign to the Company the Company Inventions including all rights in and to any related patents and other intellectual property that may issue thereon in any and all countries, whether during or subsequent to the term of this Letter Agreement, together with the right to file, in your name or in the name of the Company (or its designee), applications for patents and equivalent rights (the "Applications"). You will, at any time during and subsequent to the term of this Letter Agreement, make such applications, sign such papers, take all rightful oaths, and perform all acts as may be requested from time to time by the Company with respect to the Company Inventions

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and the underlying intellectual property. You will also execute assignments to the Company (or its designee) of the Applications, and give the Company and its attorneys all reasonable assistance (including the giving of testimony) to obtain the Company Inventions and the underlying intellectual property for its benefit, all without additional compensation to you from the Company, but entirely at the Company's expense.

(ii) In addition, the Company Inventions will be deemed "work made for hire", as such term is defined under the copyright law of the United States, on behalf of the Company and you agree that the Company will be the sole owner of the Company Inventions, and all underlying rights therein, in all media now known or hereinafter devised, throughout the universe and in perpetuity without any further obligations or compensation to you. If the Company Inventions, or any portion thereof, are deemed not to be work made for hire, you hereby irrevocably convey, transfer, assign and deliver to the Company, all rights, titles and interests, in all media now known or hereinafter devised, throughout the universe and in perpetuity, in and to the Company Inventions, including without limitation: (a) all of your rights, titles and interests in and to any underlying intellectual property (and all renewals, revivals and extensions thereof) related to the Company Inventions; (b) all rights of any kind or any nature now or hereafter recognized, including without limitation, the unrestricted right to make modifications, adaptations and revisions to the Company Inventions, to exploit and allow others to exploit the Company Inventions; and (c) all rights to sue at law or in equity for any infringement, or other unauthorized use or conduct in derogation of the Company Inventions, known or unknown, prior to the date hereof, including without limitation the right to receive all proceeds and damages therefrom. In addition, you hereby waive any so-called "moral rights" with respect to the Company Inventions. You hereby waive any and all currently existing and future monetary rights in and to the Inventions and all patents and other intellectual property rights that may issue thereon, including, without limitation, any rights that would otherwise accrue to your benefit by virtue of you being an employee of or other service provider to the Company.

(iii) To the extent that you are unable to assign any of your right, title or interest in any Company Invention under applicable law, for any such Company Invention and the underlying intellectual property rights, you hereby grant to the Company an exclusive, irrevocable, perpetual, transferable, worldwide, fully paid license to such Company Invention and the underlying intellectual property, with the right to sublicense, use, modify, create derivative works and otherwise fully exploit such Company Invention and the underlying intellectual property, to assign this license and to exercise all rights and incidents of ownership of the Company Invention.

(iv) To the extent that any of the Company Inventions are derived by, or require use by the Company of, any works, Inventions, or other intellectual property rights that you own, which are not assigned hereby, you hereby grant to the Company an irrevocable, perpetual, transferable, worldwide, non-exclusive, royalty free license, with the right to sublicense, use, modify and create derivative works using such works, Inventions or other intellectual property rights, but only to the extent necessary to permit the Company to fully realize their ownership rights in the Company Inventions.

(h) **Cooperation**. Upon the receipt of notice from the Company (including outside counsel), you agree that while employed by the Company and thereafter, you will respond and provide information with regard to matters in which you have knowledge as a result of your employment with the Company, and will provide reasonable assistance to the Employer and its representatives in defense of any claims that may be made against the Employer, and will assist the Employer in the prosecution of any claims that may be made by the Employer, to the extent that such claims may relate to the period of your employment with the Company (or any predecessor). You agree to promptly inform the Company if you become aware of any lawsuits involving such

claims that may be filed or threatened against the Employer. You also agree to promptly inform the Company (to the extent you are legally permitted to do so) if you are asked to assist in any investigation of the Employer (or their actions), regardless of whether a lawsuit or other proceeding has then been filed against the Employer with respect to such investigation, and will not do so unless legally required.

(i) **Return of Property**. On the date of the termination of your employment with the Company for any reason (or at any time prior thereto at the Company's request), you will return all property belonging to the Employer (including, but not limited to, any Employer provided laptops, computers, cell phones, wireless electronic mail devices or other equipment, or documents and property belonging to the Employer).

(j) **Injunctive Relief**. It is further expressly agreed that the Employer will or would suffer irreparable injury if you were to violate the provisions of this paragraph 7 and that the Employer would by reason of such violation be entitled to injunctive relief in a court of appropriate jurisdiction and you further consent and stipulate to the entry of such injunctive relief in such court prohibiting you from violating the provisions of this paragraph 7.

(k) **Former Employers**. You agree not disclose to the Company or use for its benefit any information that, to your knowledge, is proprietary or confidential to any of your former employers, without proper consent from your former employer. You have not signed any non-competition or other contract that prohibits you from being employed by the Company or assigning your works and ideas to the Company.

(l) **Survival of Provisions**. The obligations contained in this paragraph 7 will survive the termination of your employment with the Company and will be fully enforceable thereafter. If it is determined by a court of competent jurisdiction in any state that any restriction in this paragraph 7 is excessive in duration or scope or extends for too long a period of time or over too great a range of activities or in too broad a geographic area or is unreasonable or unenforceable under the laws of that state, it is the intention of the parties that such restriction may be modified or amended by the court to render it enforceable to the maximum extent permitted by the law of that state or jurisdiction.

8. **Representation**. You represent and warrant that your execution and delivery of this Letter Agreement and your performing the contemplated services does not and will not conflict with or result in any breach or default under any agreement, contract or arrangement which you are a party to or violate any other legal restriction.

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9. **Assignment; Third Party Beneficiaries**. Notwithstanding anything else herein, this Letter Agreement is personal to you and neither the Letter Agreement nor any rights hereunder may be assigned by you. The Company may assign the Letter Agreement to an affiliate or to any acquiror of all or substantially all of the assets of the Company. This Letter Agreement will inure to the benefit of and be binding upon the personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees, legatees and permitted assignees of the parties. You acknowledge that this Letter Agreement is intended to benefit the Company, its shareholders, and its and their parents, affiliates, subsidiaries, divisions, and related companies or entities, now existing or hereafter created. You further acknowledge that the intended beneficiaries of this Letter Agreement are entitled to enforce the provisions of this Letter Agreement by seeking injunctive relief or any other appropriate remedy.

10. **Arbitration; Attorneys' Fees**. You agree that all disputes and controversies arising under or in connection with this Letter Agreement, other than seeking injunctive or other equitable relief under paragraph 7(j), will be settled by arbitration conducted before one (1) arbitrator mutually agreed to by the Company and you, sitting in New York, New York or such other location agreed to by you and the Company, in accordance with the National Rules for the Resolution of Employment Disputes of the American Arbitration Association then in effect; provided, however, that if the Company and you are unable to agree on a single arbitrator within 30 days of the demand by another party for arbitration, an arbitrator will be designated by the New York Office of the American Arbitration Association. The determination of the arbitrator will be final and binding on you and the Company. Judgment may be entered on the award of the arbitrator in any court having proper jurisdiction. Each party will bear their own expenses of such arbitration, except that you agree to indemnify the Company for its reasonable attorneys' fees and costs incurred in enforcing the terms of this Agreement should you violate any of its terms.

11. **Governing Law**. This Letter Agreement and any other document or instrument delivered pursuant hereto, and all claims or causes of action that may be based upon, arise out of or relate to this Agreement will be governed by, and construed under and in accordance with, the internal laws of the State of Delaware, without reference to rules relating to conflicts of laws.

12. **Withholding Taxes**. The Company may withhold from any and all amounts payable to you such federal, state and local taxes as may be required to be withheld pursuant to any applicable laws or regulations.

13. **Notices**. All notices and other communications required or permitted hereunder or necessary or convenient in connection herewith shall be in writing and shall be deemed to have been given when hand delivered or three (3) days after being mailed by registered or certified mail to you or the Company, as the case may be, at your address set forth above or the Company's address set forth below, or to such other names or addresses as you or the Company, as the case may be, shall designate by notice to each other person entitled to receive notices in the manner specified in this Section (provided that notice of change of address shall be deemed given only when received).

Company notices shall be delivered to:

OptiNose US Inc.
Attn: Peter Miller, Chief Executive Officer
1020 Stony Hill Road
Suite 300
Yardley, PA 19067

With a copy (which shall not constitute notice) to:

Hogan Lovells US LLP
Attn: Kevin C. Clayton, Esq.
555 Thirteenth St., NW
Washington, DC 20004

14. **Entire Agreement; Amendments**. This Letter Agreement and the agreements referenced herein contain the entire agreement of the parties relating to the subject matter hereof, and supersedes in their entirety any and all prior and/or contemporaneous agreements, understandings or representations relating to the subject matter hereof, whether written or oral, including without limitation your offer letter. No amendments, alterations or modifications of this Letter Agreement will be valid unless made in writing and signed by the parties hereto.

15. **Section Headings**. The section headings used in this Letter Agreement are included solely for convenience and will not affect, or be used in connection with, the interpretation of this Letter Agreement.

16. **Severability**. The provisions of this Letter Agreement will be deemed severable and the invalidity of unenforceability of any provision will not affect the validity or enforceability of the other provisions hereof No failure to exercise, delay in exercising, or single or partial exercise of any right, power or remedy by either party, and no course of dealing between the parties, shall constitute a waiver of, or shall preclude any other or further exercise of, any right, power or remedy.

17. **Counterparts**. This Letter Agreement may be executed in several counterparts (including via facsimile and/or .pdf), each of which will be deemed to be an original but all of which together will constitute one and the same instruments.

18. **Intent to Be Bound**. You intend to be legally bound by this Agreement, and you intend this to be a sealed instrument.

19. **Section 409A**. The parties hereto intend that the payments and benefits provided for in this Letter Agreement either be exempt from Section 409A of the Internal Revenue Code of 1986, as amended ("Section 409A"), or be provided for in a manner that complies with Section 409A of the Code. Neither of the parties hereto, individually or in combination, may accelerate any payment or benefit that is subject to Section 409A, except in compliance with Section 409A and the provisions of this Letter Agreement, and no amount that is subject to Section 409A shall be paid prior to the earliest date on which it may be paid without violating Section 409A. To the extent that any provision hereof is modified in order to comply with

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Section 409A, such modification shall be made in good faith and shall, to the maximum extent reasonably possible, maintain the original intent and economic benefit to you and the Company of the applicable provision without violating the provisions of Section 409A. In no event whatsoever shall the Company be liable for any additional tax, interest or penalty that may be imposed on you by Section 409A or damages for failing to comply with Section 409A. For purposes of Section 409A, your right to receive installment payments pursuant to this Letter Agreement including, without limitation, each severance payment and COBRA continuation reimbursement shall be treated as a right to receive a series of separate and distinct payments. You will be deemed to have terminated employment for purposes of determining the timing of any payments or benefits hereunder that are classified as deferred compensation only upon a "separation from service" within the meaning of Section 409A. Any amount that you are entitled to be reimbursed under this Letter Agreement will be reimbursed to you as promptly as practical and in any event not later than the last day of the calendar year after the calendar year in which the expenses are incurred, any right to reimbursement or in kind benefits will not be subject to liquidation or exchange for another benefit, and the amount of the expenses eligible for reimbursement during any taxable year will not affect the amount of expenses eligible for reimbursement in any other taxable year. Whenever a payment under this Letter Agreement specifies a payment period with reference to a number of days (e.g., "payment shall be made within thirty (30) days following the date of termination"), the actual date of payment within the specified period shall be within the sole discretion of the Company.

[Signature Page Follows]

We hope that you find the foregoing terms and conditions acceptable. Please indicate your agreement with the terms and conditions set forth in this Letter Agreement by signing the enclosed duplicate original of this Letter Agreement and returning it to the Company.

We look forward to your employment with the Company.

Very truly yours,

OptiNose US, Inc.

By: /s/ Ramy A. Mahmoud
Name: Ramy A. Mahmoud, MD, MPH, FACP
Title: President & Chief Operating Officer

Accepted and Agreed:

/s/ Michael F. Marino
Michael Marino, Esq.

Exhibit 10.11

Execution Copy

LICENSE AGREEMENT

between

OPTINOSE AS

and
AVANIR PHARMACEUTICALS, INC.

LICENSE AGREEMENT

This **LICENSE AGREEMENT** (the "**Agreement**") is entered into on July 1, 2013 (the "**Effective Date**") between **OptiNose AS**, a Norwegian corporation, company registration number 982483131, with its principal place of business at Austliveien 1, 0751 Oslo, Norway, and its postal address at Pb 288 Roa, 0702 Oslo, Norway ("**OptiNose**"), and **Avanir Pharmaceuticals, Inc.,** a Delaware corporation, with offices at 20 Enterprise, Suite 200, Aliso Viejo, CA 92656, U.S.A. ("**Avanir**"). OptiNose and Avanir are sometimes referred to herein individually as a "**Party**" and collectively as the "**Parties**."

RECITALS

WHEREAS, OptiNose is a pharmaceutical company with expertise in improving the delivery of pharmaceutical products through the nasal cavity through the research and development of nasal delivery devices;

WHEREAS, Avanir is a pharmaceutical company having the capability to develop, obtain regulatory approval for, manufacture, distribute, market and sell such products;

WHEREAS, OptiNose has developed a breath-powered nasal delivery device for the delivery of, among other products, powder formulations of a triptan, and owns certain patents, know-how and other intellectual property related to such product;

WHEREAS, Avanir desires to obtain an exclusive license to such patents, know-how and other intellectual property in order to develop further and commercialize the Product in the Licensed Territory (each, as defined below), and OptiNose desires to grant such license to Avanir, all on the terms and conditions set forth herein.

NOW THEREFORE, in consideration of the foregoing premises and the mutual promises, covenants and conditions contained in this Agreement, the Parties agree as follows:

ARTICLE I
DEFINITIONS; INTERPRETATION

As used in this Agreement, the following initially capitalized terms, whether used in the singular or plural form, shall have the meanings set forth in this Article 1.

1.1 **"Affiliate"** means, with respect to a particular Party, a person, corporation, or other business entity that, directly or indirectly through one or more intermediaries, controls, is controlled by or is under common control with such Party, as the case may be. For the purposes of this definition, the word "control" (including, with correlative meaning, the terms "controlled by" or "under the common control with") means: (a) to possess, directly or indirectly, the affirmative power to direct or cause the direction of the management and policies of such person, corporation, or other business entity, whether through ownership of voting securities or by contract relating to voting rights or corporate governance; or (b) direct or indirect ownership of fifty percent (50%) or more of the voting share capital of such person, corporation or other business entity.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

1.2 **"Annual Net Sales"** means the total Net Sales of Products sold by Avanir, its Affiliates and/or sublicensees in the Licensed Territory for each twelve (12) consecutive month period commencing with the first day of the calendar month in which the First Commercial Sale occurs or the anniversary of such date, as applicable.

1.3 **"Commercially Reasonable Efforts"** means the level of efforts and resources consistent with the efforts and resources expended by [***].

1.4 **"Confidential Information"** means, with respect to a Party, all Information of such Party or its Affiliates that is provided to the other Party or its Affiliate pursuant to this Agreement. All Information disclosed by either Party or its Affiliates to the other Party or its Affiliates pursuant to the Confidential Disclosure Agreement between the Parties dated September 20, 2012 (the "**Confidentiality Agreement**"), shall be deemed to have been disclosed under this Agreement on a going-forward basis and shall be subject to the terms of Article 12 from and after the Effective Date.

1.5 **"Contract Year"** means each twelve (12) consecutive month period beginning with the first day of the calendar month in which the First Commercial Sale occurs, or the anniversary of such date, as applicable.

1.6 **"Control"** means, with respect to any material, Information, or intellectual property right, that a Party or its Affiliate owns or has a license to such material, Information, or intellectual property right, and has the ability to grant to the other Party access, a license, or a sublicense (as applicable) to

such material, Information, or intellectual property right on the terms and conditions set forth herein without violating the terms of any agreement or other arrangement with any Third Party existing at the time such Party would first be required hereunder to grant to the other Party such access, license or sublicense.

1.7 **"Device"** means a nasal device used for the delivery of pharmaceutical products in a powder or liquid formulation and that is covered by an OptiNose Patent listed on Exhibit 1.28.

1.8 **"Device Improvement"** means any discoveries or inventions, whether or not patentable, developed by [***] in exercising its rights or performing its obligations under this Agreement, to the extent [***].

1.9 **"FDA"** means the U.S. Food and Drug Administration, or its successor.

1.10 **"FD&C Act"** means the U.S. Federal Food, Drug and Cosmetic Act, as amended.

1.11 **"First Commercial Sale"** shall mean the date of the first sale for end use or consumption of the first Product in any country of the Licensed Territory.

1.12 **"Fiscal Quarter"** means a consecutive three (3) calendar month period during a Fiscal Year starting on either October 1, January 1, April 1 or July 1, as the case may be.

1.13 **"Fiscal Year"** means each consecutive twelve (12) month period commencing on October 1 of each calendar year and ending on September 30 of the calendar year thereafter.

1.14 **"Generic Product"** means a product that: (a) has been deemed by the FDA to be [***] to the Product by virtue of [***] or any other product that has been deemed by the FDA (or other applicable Governmental Authority in a particular country of the Licensed Territory) to be [***] and (b) [***].

1.15 **"Governmental Authority"** means any federal, state, local, municipal or other government authority of any nature (including any governmental division, prefecture, subdivision, department, agency, bureau, branch, office, commission, council, court or other tribunal), including any Regulatory Authority.

1.16 **"Head to Head Trial"** means the OPN-SUM-MIG-3302 Phase III clinical trial for the Product ongoing as of the Effective Date, under the protocol entitled, "*Efficacy and Safety of 20 mg Sumatriptan Powered*

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Delivered Intranasaly with the Bi-Directional Device compared with 100 mg Sumatriptan Tablets in Adults with Acute Migraine with or without Aura."

1.17 **"IND"** means (a) an Investigational New Drug Application as defined in the FD&C Act and applicable regulations promulgated hereunder; or (b) an equivalent application to a Regulatory Authority in any jurisdiction outside the U.S., the filing of which is necessary to commence or conduct clinical testing of a pharmaceutical product in humans in such jurisdiction.

1.18 **"Information"** means any data, results, technology, business information, financial information and other proprietary information of any type whatsoever, in any tangible or intangible form, including know-how, trade secrets, practices, techniques, methods, processes, inventions, developments, specifications, formulations, formulae, materials or compositions of matter of any type or kind (patentable or otherwise), Regulatory Materials, marketing reports, expertise, technology, test data (including pharmacological, biological, chemical, biochemical, toxicological, research, preclinical and clinical test data (including original patient report forms, investigator reports, clinical protocols, statistical analyses, expert opinions and reports)), manufacturing data (including analytical and quality control data, stability data, other study data and procedures and other chemistry, manufacturing and control (CMC) data), safety or other adverse reaction files and complaint files, presentations and papers from academic meetings or market research, in each case, together with all supporting data and raw source data; provided, however, Information shall exclude any and all patient specific and other similar data to the extent such exclusion is required by applicable privacy laws (in which case such Information shall be treated confidentially in accordance with applicable privacy laws).

1.19 **"Lawful Entry"** means the commercial launch of a Generic Product following Regulatory Approval of such Generic Product; provided that, (i) such commercial launch or other availability of the Generic Product is not [***], or (ii) [***]; and provided further that in each of (i) and (ii), such Generic Product [***].

1.20 **"Laws"** means all laws, statutes, rules, regulations, and ordinances of any multi-national, federal, state, local or municipal subdivision, including laws and regulations promulgated by Regulatory Authorities relating to the development, manufacture, testing and/or commercialization of pharmaceutical products.

1.21 **"Licensed Territory"** means the United States, Canada and Mexico.

1.22 **"Marketing Approval Application"** or "**MAA"** means an NDA submitted to (and the submission of which has been accepted for substantive review by) the FDA in the United States or a corresponding application for approval to sell a Product that has been submitted to (and the submission of which has been accepted for substantive review by) a Regulatory Authority in any other jurisdiction.

1.23 **"NDA"** means a New Drug Application (or its equivalent), as defined in the FD&C Act.

1.24 **"Net Sales"** means the gross amounts invoiced by Avanir, its Affiliates and/or sublicensees, as the case may be, for sales of Products to Third Party customers, less reasonable and customary deductions for the following items incurred, allowed, paid or accrued, as determined in accordance with

generally accepted accounting principles in the United States ("**GAAP**"), applied on a consistent basis by Avanir, its Affiliate or sublicensee, as applicable:

(a) [***];

(b) [***];

(c) [***]; and

(d) [***].

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Notwithstanding the foregoing, [***]. If a sale or other disposition with respect to Products is not at arm's length, then the Net Sales from such sale or other disposition shall be [***].

1.25 **"OptiNose Additional Intellectual Property"** means, subject to Section 9.7, any industrial designs, works of authorship, and copyrights Controlled by OptiNose or any of its Affiliates as of the Effective Date or during the Term that are necessary or reasonably useful for the research, development, use, manufacture, sale or other commercialization of the Product or Device.

1.26 **"OptiNose IP"** means, collectively, the OptiNose Patents, OptiNose Know-How, OptiNose Trademarks, and OptiNose Additional Intellectual Property.

1.27 **"OptiNose Know-How"** means, subject to Section 9.7, all Information (including trade secrets) Controlled by OptiNose or any of its Affiliates as of the Effective Date or during the Term necessary or reasonably useful for the research, development, use, manufacture, sale or other commercialization of the Device or a Product. OptiNose shall, within [***] of the Effective Date, provide Avanir with a schedule listing material, tangible OptiNose Know-How. For clarity, OptiNose Know-How shall include all Device Improvements other than Device Improvements covered by or claimed in an OptiNose Patent.

1.28 **"OptiNose Patent"** means, subject to Section 9.7, all Patents Controlled by, OptiNose or any of its Affiliates as of the Effective Date or during the Term that cover or claim a Product and/or Device, including those Patents listed on Exhibit 1.28, together with all divisionals, substitutions, registrations, re-examinations, additions, continuations, continuations-in-part, reissues, renewals and Patent Term Extensions of or to any of the foregoing. For clarity, OptiNose Patents shall include any Patents Controlled by OptiNose or any of its Affiliates that cover or claim a Device Improvement.

1.29 **"OptiNose Trademarks"** means, subject to Section 9.7, any, whether domestic or foreign, trademarks, service marks, and trade names Controlled by OptiNose or any of its Affiliates as of the Effective Date or during the Term that are used (or required to be used) in connection with the Device or a Product in the Licensed Territory, including those trademarks, service marks and trade names listed on Exhibit 1.29 (the "**Existing OptiNose Trademarks**").

1.30 **"Out-of-Pocket Expenses"** means amounts paid by a Party (or its Affiliate) to Third Party vendors or contractors, for services or materials provided by them directly in their performance of activities reflected in the Development Plan, to the extent the amounts paid for such services or materials are specified in Exhibit 4.5(a) attached to this Agreement. For clarity, Out-of-Pocket Expenses do not include payments for salaries or benefits, facilities, utilities, general office supplies, insurance, information technology, and other general administrative costs of a Party or its Affiliate.

1.31 **[***]**

1.32 **[***]**

1.33 **"Patent Term Extension"** means any term extensions, supplementary protection certificates, and equivalents thereof offering patent or patent-like protection beyond the initial term with respect to any issued Patents.

1.34 **"Patents"** means, whether domestic or foreign: (a) any patent applications, issued patents, utility models and designs and inventor's certificates; and (b) all divisionals, substitutions, registrations, re-examinations, additions, continuations, continuations-in-part, reissues, renewals and Patent Term Extensions of or to any of the foregoing.

1.35 **"Product(s)"** means any products or product candidates developed by or under the authority of a Party or any of its Affiliates as of the Effective Date or during the Term consisting of a formulation that contains as its sole active ingredient a compound within the class of compounds known as triptans, including any salt,

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[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

polymorphic or amorphous form of such a compound, that is delivered in a nasal delivery device; [***]. For purposes of the foregoing, the class of compounds known as triptans includes the compounds known as of the Effective Date as the following: Sumatriptan, [***]. Solely for the purposes of clause (i) of Section 2.3(a), a "Product" shall also include products or product candidates consisting of [***].

1.36 **"Product Complaint"** means any written, oral or electronic expression of dissatisfaction regarding a Product, including reports of actual or suspected product tampering, contamination, mislabeling or inclusion of improper ingredients.

1.37 **"Regulatory Approval"** means all approvals, licenses, registrations or authorizations of any Regulatory Authority necessary for the development, manufacture, marketing, import or sale of a Product in a given country or regulatory jurisdiction.

1.38 **"Regulatory Authority"** means the FDA or any applicable Governmental Authority in a jurisdiction outside the United States with similar regulatory authority in such jurisdiction.

1.39 **"Regulatory Exclusivity"** means any exclusive marketing rights or data exclusivity rights conferred by any applicable Regulatory Authority or other Governmental Authority in the Licensed Territory, other than an issued and unexpired Patent, including any regulatory data protection exclusivity.

1.40 **"Regulatory Materials"** means all INDs, Marketing Approval Applications, Regulatory Approvals, applications for pricing approvals and other regulatory applications, submissions, notifications, communications, correspondence, and/or filings made to, received from or otherwise conducted with a Regulatory Authority (including minutes of meeting with Regulatory Authorities and any Product package insert) that are necessary or reasonably useful in connection with, or otherwise pertain specifically to, the development, manufacture, marketing, sale or other commercialization of the Product in the Licensed Territory.

1.41 **"Successful Completion of the Head to Head Trial"** means that pursuant to the statistical analysis plan determined pursuant to Section 4.3(a) at least one of the criteria set forth below in items (i) through (iv) has been satisfied and item (v) has been satisfied:

(i) [***]

(ii) [***]

(iii) [***]

(iv) [***]

(v) [***]

1.42 **"Third Party"** means any person, corporation or other business entity, other than OptiNose or Avanir or their respective Affiliates.

1.43 **"United States"** or "**U.S.**" means the United States of America and its possessions and territories, including Puerto Rico.

1.44 **"Valid Claim"** means an issued and unexpired claim of Patent, or a claim of a pending patent application, included in the OptiNose Patents within the Licensed Territory that: (a) has not been held unpatentable, invalid or unenforceable by a court or other Governmental Authority of competent jurisdiction in a decision from which no appeal can be or has been taken; and (b) which has not been admitted to be invalid or unenforceable through reissue, re-examination, disclaimer or otherwise. Notwithstanding the foregoing, if a claim of a pending patent application within the OptiNose Patents has not issued as a claim of a patent within [***] after the filing date from which such claim takes priority, such claim shall not be a Valid Claim for the purposes of this Agreement,

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unless and until such claim issues as a claim of an issued patent (from and after which time the same shall be deemed a Valid Claim subject to (a) and (b) above).

1.45 **"Wind-Down Period"** means the period commencing on the termination of this Agreement in its entirety and ending [***] thereafter.

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1.46 **Additional Definitions**. Each of the following terms shall have the meaning described in the corresponding Section of this Agreement indicated below:

Term	Section
Acquiring Entities	9.7
Acquisition	9.7
Avanir Assumed Patent	9.2(b)
Avanir Indemnitees	11.1
Avanir Trademarks	9.6
[***]	[***]
Claims	11.1

Committee	3.4
Consultants	Exhibit 4.5(b)
Cost Sharing Commencement Date	Exhibit 4.5(b)
Current Clinical Studies and Activities	4.3(a)
[***]	[***]
Debarred Person	10.3(l)
Development Milestone	8.2(a)
Development Plan	4.1(a)
Development Plan Budget	Exhibit 4.5(b)
Device-Specific Regulatory Materials	5.4(b)
[***]	[***]
Escalation Notice	3.6
HSR Act	10.2(p)
HSR Rules	10.2(p)
Indemnified Party	11.3
Indemnifying Party	11.3
Infringement	9.3(a)
Infringer	9.3(a)
JAMS	14.3(b)
Joint Development Committee / JDC	3.2(a)
Joint Development Costs	Exhibit 4.5(b)
Joint Intellectual Property Committee / JIPC	3.3
Joint Steering Committee / JSC	3.1(a)
Liabilities	11.1
OptiNose Indemnitees	11.2
OptiNose Style Guide	6.3
Patent Challenge	13.2(b)
Product Launch Plan	6.2(a)
Prosecution and Maintenance	9.2(c)
Royalty	8.3(a)
Royalty Report	8.3(b)(i)
Royalty Term	8.3(d)
Rules	14.3(b)
Sales Milestone	8.2(b)
Supply Agreement	7.4
Supply Transition Date	7.1
Supply Transition Period	2.1(b)
Supply Transition Plan	7.1
Tax residence Certificate	8.4(b)
Term	13.1
Third Party Agreements	10.3(a)
Third Party Infringement Actions	9.4

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

1.47 **Interpretation**.

Unless specified to the contrary, references to Articles, Sections or Exhibits mean the particular Articles, Sections or Exhibits to this Agreement and references to this Agreement include all Exhibits hereto. Unless the context clearly requires otherwise, whenever used in this Agreement: (i) the words "include" or "including" shall be construed as incorporating, also, "but not limited to" or "without limitation," whether or not such additional words are written; (ii) the word "or" shall have its inclusive meaning of "and/or" except when paired as "either/or"; (iii) the word "day" or "quarter" or "year" means a calendar day or calendar quarter or calendar year; (iv) the word "notice" shall require notice in writing (whether or not specifically stated) and shall include notices, consents, approvals and other communications contemplated under this Agreement; (v) the words "hereof," "herein," "hereunder," "hereby" and derivative or similar words refer to this Agreement (including the Exhibits hereto); (vi) provisions that require that a Party, the Parties or a Committee hereunder "agree," "consent" or "approve" or the like shall require that such agreement, consent or approval be specific and in writing, whether by written agreement, letter or otherwise; (vii) words of any gender include the other gender; (viii) words using the singular or plural number also include the plural or singular number, respectively; (ix) the word "will" shall be construed to have the same meaning and effect as the word "shall;" and (x) references to any specific Law, article, section or other division thereof, shall be deemed to include the then current amendments thereto or any replacement thereof.

ARTICLE II
LICENSES AND TECHNOLOGY TRANSFER

2.1 **License to Avanir under OptiNose IP.**

(a) **Exclusive Product License**. Subject to Section 2.1(b) below and the other terms and conditions of this Agreement, OptiNose hereby grants Avanir an exclusive (even as to OptiNose) license to and under the OptiNose Know-How, the OptiNose Patents, the OptiNose Trademarks and the OptiNose Additional Intellectual Property: (i) to use, sell, offer for sale, have sold and import the Product in the Licensed Territory; and (ii) to make or have made the Product anywhere in the world solely for such permitted use, sale, offer for sale and importation in the Licensed Territory; provided that Avanir shall [***].

(b) **Retained Rights**. Notwithstanding Section 2.1(a) above, but subject to Section 2.3 below, OptiNose retains rights under the OptiNose IP to use, make, have made, sell, have sold, import or otherwise export products (including the Product) in the Licensed Territory for uses other than the prevention, treatment and/or palliation of, or other applications relating to, [***] or [***]. For the avoidance of doubt, but subject to Section 2.3 below: (i) the foregoing retention of rights includes OptiNose's rights to use, make, have made, sell, have sold, import, or otherwise exploit products for the prevention, treatment and/or palliation of, or other applications relating to [***] so long as such products are not a Product; and (ii) subject to the manufacturing rights granted by OptiNose to Avanir pursuant to Section 2.1(a)(ii) above, nothing in this Agreement shall limit (or be construed to limit) OptiNose's rights to freely exploit any OptiNose IP or other intellectual or proprietary rights Controlled by OptiNose or its Affiliates or the Product outside the Licensed Territory, including to make or have made the Product anywhere in the world solely to exploit the Product outside of the Licensed Territory (or from the Effective Date until the Supply Transition Date ("**Supply Transition Period**"), for the purposes of using Product in the Licensed Territory in accordance with the Development Plan under this Agreement).

(c) **Sublicense Rights**. Subject to the terms and conditions of this Section 2.1(c), Avanir shall have the right to grant and authorize sublicenses to its Affiliates and any Third Party under the rights granted in Section 2.1(a) above, without the consent of OptiNose; provided that with respect to each such sublicense under the OptiNose IP granted by Avanir to a Third Party: (i) such sublicense shall be in writing and shall refer to this Agreement and shall be subject and subordinate to this Agreement; (ii) a copy of such sublicense shall be provided to OptiNose following the execution thereof; provided that confidential terms may be redacted to the extent such terms are not necessary to determine compliance with this Agreement or to determine the rights granted under any OptiNose IP; and (iii) [***]. In addition, such Third Party sublicensee shall: (A) [***]; (B) [***]; (C) [***]; (D) [***]; and (E) [***]. Avanir shall use reasonable efforts to enforce the provisions of its agreements with

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sublicensees incorporating the requirements set forth in the foregoing clauses (A) through (E). For the avoidance of doubt, any co-promotion agreement or similar agreement pursuant to which Avanir's counterparty is compensated by Avanir for its activities and does not receive any revenues from sales of Product directly from the purchasers thereof shall not be deemed a sublicense pursuant to this Section 2.1(c) (and conversely any co-promotion agreement or similar agreement pursuant to which Avanir's counterparty does receive any revenues from sales of Product directly from the purchasers thereof shall be deemed a sublicense); provided that any such agreement between Avanir or its Affiliate with respect to co-promotion or other similar arrangement involving the Product shall comply with the terms of clauses (A) through (E) of this Section 2.1(c).

2.2 **No Implied Licenses**. Except as explicitly set forth in this Agreement, neither Party grants any license or other rights, express or implied, under its intellectual property rights or its INDs, MAAs, Regulatory Approvals or confidential and proprietary rights to the other Party, and no additional rights shall be deemed granted by implication, estoppel or otherwise. Nothing in this Agreement will grant (or be construed to grant) to Avanir or its Affiliates any right to make, have made, use, offer for sale, sell, import or otherwise exploit any product other than a Product or a Device in connection with the making, having made, use, offering for sale, selling, importing or otherwise exploiting a Product for the Licensed Territory.

2.3 **Restrictions on the Parties.**

(a) Notwithstanding any provision of this Agreement to the contrary, commencing on the Effective Date and continuing until the expiration or earlier termination of this Agreement, OptiNose agrees, on behalf of itself and its Affiliates, (i) not to[***], or (B) authorize or assist any Third Party to do any of the foregoing; and (ii) to refrain from asserting any rights of OptiNose or its Affiliates under any other Patents Controlled by OptiNose or its Affiliates, against the use, making, having made, or other permitted exploitation of a Product by or under the authority of Avanir in the Licensed Territory.

(b) Notwithstanding any provision of this Agreement to the contrary, Avanir agrees, on behalf of itself and its Affiliates, and shall use reasonable efforts to require its sublicensees, not to, directly or indirectly: (i) manufacture, use, sell, offer for sale, market, promote, import or otherwise exploit or commercialize any Product outside the Licensed Territory (except as expressly permitted by Section 2.1(a)(ii)), or (ii) authorize or assist any Third Party to do any of the foregoing.

2.4 **Transfer of OptiNose Know-How.**

(a) [***], OptiNose shall provide to Avanir [***] copies of all OptiNose Know-How that is in tangible form and that may be [***] for Avanir to develop, obtain Regulatory Approval for, and/or commercialize the Product in the Licensed Territory and to manufacture the Product in any country for use and sale in the Licensed Territory (subject to Section 2.1(a)(ii) to the extent applicable), including: (i) copies of all documentation, reports and other Information from all clinical trials and preclinical studies for the Product or the Device that have been obtained by OptiNose; (ii) copies of all Regulatory Materials pertaining to the Product in the Licensed Territory; and (iii) copies of all non-clinical, analytical and manufacturing data relating to the Product.

(b) From time-to-time throughout the Term [***], and otherwise promptly upon Avanir's reasonable request, OptiNose shall provide to Avanir copies of all OptiNose Know-How that is in tangible form and that is Controlled by OptiNose that has not previously been provided hereunder, including all additional data, documentation, reports and other Information arising out of all activities assigned to OptiNose under the Development Plan.

(c) In complying with its obligations under this Section 2.4, OptiNose shall provide the OptiNose Know-How in electronic form, to the extent the same exists in electronic form, and shall provide copies as reasonably requested. The Parties will cooperate and reasonably agree upon formats and procedures to facilitate the orderly and efficient exchange of the OptiNose Know-How, as set forth above.

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(d) Upon Avanir's request and until [***], OptiNose shall reasonably cooperate with and assist Avanir as may be reasonably necessary to allow Avanir to understand the OptiNose Know-How and to utilize the OptiNose Know-How for the purposes contemplated in this Agreement.

ARTICLE III
GOVERNANCE

3.1 **Joint Steering Committee.**

(a) **Establishment**. Within [***] following the Effective Date, OptiNose and Avanir shall establish a Joint Steering Committee ("**Joint Steering Committee**" or "**JSC**") to oversee, review and coordinate the Parties' development activities with respect to the Product and Regulatory Approvals for the Product in the Licensed Territory and to provide a forum for the Parties to discuss Avanir's activities with respect to the commercialization of the Product in the Licensed Territory, subject to the provisions of this Article 3.

(b) **Duties. The JSC shall:**

(i) Review changes to the Development Plan in accordance with this Agreement;

(ii) Provide a forum for the Parties to exchange information and coordinate their respective activities regarding matters pertaining to the development and manufacture of the Product and matters pertaining to Regulatory Approval of the Product in the Licensed Territory, as provided in Article 4 below;

(iii) Until [***], provide a forum for the Parties to discuss Avanir's activities with respect to the commercialization of the Product in the Licensed Territory;

(iv) As appropriate, establish additional committees to allow for the exchange of information between the Parties relating to the commercialization of the Product in the Licensed Territory;

(v) Provide a forum for resolving matters to be decided by the JDC under this Agreement pursuant to the procedures set forth in Section 3.2 and Section 3.6 below; and

(vi) Perform such other duties as are specifically assigned to the JSC in this Agreement.

3.2 **Joint Development Committee.**

(a) Establishment. Within [***] following the Effective Date, OptiNose and Avanir shall establish a joint development committee ("**Joint Development Committee**" or "**JDC**") to oversee, review and manage the conduct of the development activities necessary to obtain Regulatory Approval for the Product in the Licensed Territory.

(b) Duties. Until [***], the JDC shall:

(i) Review and approve changes to the Development Plan in accordance with Section 4.1(b);

(ii) Subject to and within the parameters of the Development Plan, oversee and manage development and regulatory activities for the Product in the Licensed Territory;

(iii) Perform such other duties as are specifically assigned to the JDC in this Agreement or delegated to the JDC by the JSC.

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3.3 **Joint IP Committee**. Within [***] following the Effective Date, OptiNose and Avanir shall establish a joint intellectual property committee ("**Joint IP Committee**" or "**JIPC**") to discuss all OptiNose Patents, OptiNose Trademarks and copyright matters relating to the OptiNose IP to the extent licensed to Avanir or its Affiliates for Products and to ensure that Avanir has a reasonable opportunity to review, comment on and cooperate in determining OptiNose's strategy relating to the filing, prosecution, maintenance and enforcement of the OptiNose Patents.

3.4 **Committee Membership**. The JSC, JDC and JIPC (each, a "**Committee**") shall each be composed of an equal number of representatives from each of OptiNose and Avanir, selected by such Party. Unless the Parties otherwise agree, the exact number of representatives for each of OptiNose and Avanir shall be: (a) with respect to the JSC, three (3) representatives, at least one of whom shall be at the [***] level or above; (b) with respect to the JDC, three (3) representatives, at least one of whom shall be at the [***] level or above; and (c) with respect to the JIPC, two (2) representatives, at least one (1) of whom shall be a Juris Doctor (or an equivalent legal education in a jurisdiction outside the United States), be licensed to practice before the United States Patent & Trademark Office or the European Patent Office and have responsibility for intellectual property matters for the Party whom they represent. Either Party may replace its respective Committee representatives at any time with prior written notice to the other Party.

3.5 **Committee Meetings**. The JSC shall each meet at least once each calendar quarter, or as more or less often as otherwise agreed to by the Parties. The JDC and JIPC shall meet at least two (2) times each calendar year, or as otherwise reasonably requested by either Party to fulfill such Committee's responsibilities under this Agreement. All Committee meetings may be conducted by telephone, video-conference or in person as determined by the applicable Committee; provided that each Committee shall meet in person at least once each calendar year unless otherwise agreed by the Parties. Unless otherwise agreed by the Parties, all in-person meetings for each Committee shall be held on an alternating basis between OptiNose's U.S. facilities and Avanir's U.S. facilities. Each Party shall bear its own personnel and travel costs and expenses relating to Committee meetings. With the consent of the other Party (not to be withheld unreasonably), other representatives of a Party may attend any Committee meeting as non-voting observers.

3.6 **Committee Decision-making**. Decisions of the JSC and JDC shall each be made by [***]. In the event the JDC fails to reach [***] agreement with respect to a particular matter within its decision-making authority, then, upon request by either Avanir or OptiNose, such matter shall be referred to the JSC for resolution. In the event that the JSC fails to reach [***] agreement with respect to a particular matter within its authority within [***] of the matter first being presented to the JSC for decision, then upon written notice by one Party to the other Party specifying the matter within the authority of the JSC that is in dispute (each, an "**Escalation Notice**"), [***] to resolve such matter, by telephone or in person as mutually agreed. If, despite [***], the [***] fail to resolve such matter within [***] following the date of the Escalation Notice, then upon the written request of either Avanir or OptiNose, [***]; provided, however, that [***] in a manner that would: (i) [***], or (ii) [***].

3.7 **Scope of Governance**. Notwithstanding the creation of the JSC, JDC or JIPC, each Party shall retain the rights, powers and discretion granted to it hereunder, and no Committee shall be delegated or vested with rights, powers or discretion unless such delegation or vesting is expressly provided herein, or the Parties expressly so agree in writing. No Committee shall have the power to amend or modify this Agreement, and no decision of any Committee shall be in contravention of any terms and conditions of this Agreement. It is understood and agreed that issues to be formally decided by the JSC and JDC, as applicable, are only those specific issues that are expressly provided in this Agreement to be decided by the JSC and JDC, as applicable.

ARTICLE IV
DEVELOPMENT

4.1 **Development Plan.**

(a) **Initial Development Plan**. An initial development plan setting forth the development activities to be conducted by each Party in support of [***], and the anticipated budget and timeline therefor is

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attached hereto as Exhibit 4.1 ("**Development Plan**"). The Development Plan shall specify the number of personnel (calculated on the basis of full-time equivalents ("**FTEs**")) that each Party (and if applicable, its Affiliates) is expected to provide in connection with the performance of such Party's and its Affiliates' responsibilities under the Development Plan and the budget for Out-of-Pocket Expenses of each Party for such development activities. Each Party shall use [***] to fulfill such FTE and other obligations in the performance of its responsibilities under the Development Plan.

(b) **Changes to a Development Plan**. The JDC shall review the Development Plan on an ongoing basis, and in no event less frequently than [***]. The JDC may adopt amendments to the then-current Development Plan (including any amendments or updates to the Development Plan as permitted under this Section 4.1(b)); provided, however, that the written approval of both Avanir and OptiNose (which approval shall not be unreasonably withheld) shall be required for any amendment to the Development Plan that: (i) would impose on OptiNose the responsibility to incur Out-Of-Pocket Expenses in connection with the development of the Product in the Licensed Territory in addition to those specified to be incurred by OptiNose in Exhibits 4.5(a) and 4.5(b) attached hereto; or (ii) OptiNose can reasonably expect would result in a delay of [***] beyond the anticipated date for [***] specified in the initial Development Plan attached to as Exhibit 4.1 (or such later date as Avanir and OptiNose mutually agree, which agreement shall not be unreasonably withheld by either Party);.

4.2 **Development Activities of Avanir**. Except as provided in Section 4.3 below, and subject to Section 4.1(b)(ii), Avanir shall have the right to control, and shall [***] conduct, clinical development and other activities required to [***]. Avanir shall carry out all such activities in the United States in accordance with the then-current Development Plan and the Out-Of-Pocket Expenses incurred by Avanir in performing such activities shall be shared by the Parties to the extent and as provided in Section 4.5 below. In addition, Avanir shall, at its expense, be responsible for the conduct of clinical trials, continuing non-clinical studies and other activities following the receipt of Regulatory Approval for the Product in each country of the Licensed Territory for the further development of the Product for use in such country. Without limiting the foregoing, such development activities shall include the performance of any post-marketing studies required by applicable Regulatory Authorities to maintain Regulatory Approvals held by Avanir (or its designee) for the Product in the Licensed Territory.

4.3 **Development Activities of OptiNose.**

(a) **Development Activities in the Licensed Territory**. Except as otherwise mutually agreed, after the Effective Date, OptiNose shall be responsible for completing the Head to Head Trial and those other clinical studies and activities listed on Exhibit 4.3 to this Agreement or assigned to OptiNose under the Development Plan (collectively, the "**Current Clinical Studies and Activities**") and the Out-of-Pocket Expenses incurred by OptiNose in performing the Current Clinical Studies and Activities shall be shared by the Parties to the extent and as provided in Section 4.5 below. Notwithstanding any other provision of this Agreement, the Parties shall not modify, in any material respect, the protocol for the Head to Head Trial in effect as of the Effective Date, unless mutually agreed (which agreement shall not be unreasonably withheld by either Party); provided further that the Parties acknowledge and agree that, promptly following the Effective Date, they shall cooperate in good faith to develop and mutually agree upon the statistical analysis plan for the Head to Head Trial. OptiNose shall [***] conduct and complete the Current Clinical Studies and Activities assigned to it in the Development Plan in accordance with the timelines specified therein and otherwise in accordance with this Agreement.

(b) **Development Activities Outside the Licensed Territory**. OptiNose agrees to keep Avanir reasonably informed regarding the clinical and other material development activities relating to Products outside the Licensed Territory by way of updates to the JSC at its meetings[***]. Without limiting the foregoing or Section 2.4 above, [***] OptiNose shall provide to Avanir copies of all protocols for clinical trials involving a Product (and a synopsis thereof) proposed to be conducted outside the Licensed Territory reasonably in advance of the date the protocol for the applicable clinical trial will be submitted to a Regulatory Authority or the date of the initiation of such trial (whichever occurs first). Avanir shall have the right to comment on such protocols to the extent the corresponding clinical trial(s) are reasonably likely to [***] impact the commercialization of the Product in the Licensed Territory and OptiNose shall [***] any such comments provided by Avanir.

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4.4 **Conduct of Activities**. Each Party shall conduct those activities allocated to such Party under the Development Plan in compliance in all material respects with all applicable Laws and in accordance with good scientific and clinical practices, applicable under the applicable law of the country in which such activities are conducted.

4.5 **Development Cost Sharing**. The Parties shall share [***] those Out-of-Pocket Expenses constituting Joint Development Costs set out in Exhibit 4.5(a) that are incurred under and in accordance with the Development Plan in performing development and/or regulatory activities to [***]. Each Party shall remit any necessary reimbursement payments to the other Party in furtherance of its obligations under this Section 4.5 in accordance with the procedures set forth on Exhibit 4.5(b). It is understood that Joint Development Costs shall not include [***].

4.6 **Communications Regarding Development of Product**. Each Party agrees to keep the other Party reasonably informed as to the progress of such Party's performance of the clinical and other development activities and regulatory activities assigned to such Party (or its Affiliate) under the Development Plan, by way of updates to the JDC at its meetings and as otherwise reasonably requested.

ARTICLE V
REGULATORY MATTERS

5.1 **In General**. Avanir shall [***] to obtain Regulatory Approval for the Product in the United States, Canada and Mexico.

5.2 **Assignment of Regulatory Filings**. Promptly following the Effective Date, [***], OptiNose shall assign and cause to be assigned to Avanir IND No. 110090 and all other Regulatory Material relating to the Product in the Licensed Territory. Prior to the assignment and transfer of such IND and other Regulatory Materials, OptiNose shall maintain (and/or cause to be maintained) such IND and other Regulatory Materials and shall take all reasonable actions to make available to Avanir and/or its designee the benefits of such IND and other Regulatory Materials in the Licensed Territory, to the extent required by Avanir in connection with its activities under this Agreement. The Out-Of-Pocket Expenses incurred by OptiNose in performing its obligations under this Section 5.2 shall be shared by the Parties to the extent and as provided in Section 4.5 above.

5.3 **Responsibility for Regulatory Filings**. Following the Effective Date and subject to Section 5.4, Avanir shall be responsible for and shall [***], preparing, filing, obtaining and maintaining Regulatory Approvals for the Product in the Licensed Territory. Such activity by Avanir shall be done in consultation with the JDC and to the extent applicable, subject to the provisions of Section 5.4, and through the JDC, Avanir shall consult with OptiNose in connection with Avanir's pursuit of such activities in the United States and reasonably consider comments provided by OptiNose at the meetings of the JDC with respect thereto. Avanir shall also obtain any export approvals required by the FDA to import or export the Product to any country within the Licensed Territory. The Out-Of-Pocket Expenses incurred by Avanir in connection with preparing, filing, and obtaining Regulatory Approvals for the Product in the United States under this Article 5 shall be shared by the Parties to the extent and as provided in Section 4.5 above.

5.4 **Regulatory Cooperation**. Subject to this Section 5.4, Avanir shall be responsible for liaising with and managing all interactions with Regulatory Authorities in the Licensed Territory relating to the Product, unless otherwise agreed in writing by the Parties, [***].

(a) **Involvement of OptiNose. [***]:**

(i) [***];

(ii) [***]; and

(iii) [***].

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

(b) **OptiNose Right to [***] Device-Specific Regulatory Materials**. To the extent the content of any Marketing Approval Application, labeling, and/or other Regulatory Materials, for the Product in the Licensed Territory pertains specifically to the Device ("**Device-Specific Regulatory Materials**"), OptiNose shall have the right to [***] such content if OptiNose [***] that such content is reasonably likely to [***]; provided that OptiNose shall not [***] and if OptiNose does [***], upon Avanir's request, OptiNose shall promptly meet with Avanir to discuss [***]; provided further that if Avanir has not received notice from OptiNose [***] to any such Device-Specific Regulatory Materials within [***] of OptiNose's receipt of the same, OptiNose's [***] and Avanir may [***].

(c) **Cooperation and Assistance**. Without limiting Section 5.4(a) and Section 5.4(b) above: (i) Avanir shall keep OptiNose reasonably informed via the JDC as to all material interactions with Regulatory Authorities in the Licensed Territory relating to the Product; and (ii) OptiNose shall provide reasonable cooperation and assistance to Avanir in the event Avanir must respond to questions from Regulatory Authorities in the Licensed Territory concerning development activities conducted by or on behalf of OptiNose or its Affiliates involving the Device or the Product; provided that the Out-of-Pocket Expenses incurred by OptiNose in providing such cooperation to respond to questions: (A) from the FDA, shall constitute Joint Development Costs that are shared by the Parties in accordance with Section 4.5 and Exhibit 4.5(b); and (B) from a Regulatory Authority in a country of the Licensed Territory outside the United States, shall be reimbursed by Avanir.

5.5 **Clinical Safety Reporting; Pharmacovigilance.**

(a) **Clinical Safety Reporting**. As between the Parties: (a) OptiNose shall be responsible for the timely reporting of all adverse drug reactions/experiences, Product quality, Product Complaints, and safety data concerning the Product to the appropriate Regulatory Authorities in the Licensed

Territory until the transfer of the IND pursuant to Section 5.2 above; and (b) Avanir shall be responsible for the timely reporting of all adverse drug reactions/experiences, Product quality, Product Complaints, and safety data concerning the Product to the appropriate Regulatory Authorities in the Licensed Territory following the transfer of the IND pursuant to Section 5.2 above.

(b) **Pharmacovigilance Agreement**. During the Term, OptiNose shall promptly report to Avanir any Information of which it becomes aware concerning any adverse event, including any Product malfunction, side effect, injury, toxicity or sensitivity reaction, or any unexpected incident, in or involving a research patient in a clinical trial or other person involving the Product (and if required by a Regulatory Authority, the Device) and the seriousness thereof, whether or not determined to be attributable to any Product. In conjunction with this Agreement, the Parties shall enter into a pharmacovigilance agreement consistent with the ICH guidelines, including: (i) providing detailed procedures regarding the maintenance of core safety information and the exchange of safety data relating to the Product (and if required by a Regulatory Authority, the Device) within and outside the Licensed Territory within appropriate timeframes and in an appropriate format to enable each Party to meet both its expedited and periodic regulatory reporting requirements; and (ii) ensuring compliance with the reporting requirements of all applicable Regulatory Authorities within and outside the Licensed Territory.

5.6 **Inspections**. During the Term or (if longer) as otherwise required by Law, [***], OptiNose shall permit Avanir and its representatives (and those of any Regulatory Authority and/or Third Party that Avanir requests) to enter the relevant sites of OptiNose and its contractors who were involved in the development or production of any Product or the generation of any material OptiNose Know-How, including clinical trial sites and, if applicable, manufacturing sites, during normal business hours and upon reasonable advance notice, to inspect and verify the activities related to the development and/or production of Product, including compliance with applicable Laws. Upon Avanir's request, OptiNose shall, at Avanir's expense, provide assistance in connection with any such inspection. [***].

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ARTICLE VI
COMMERCIALIZATION

6.1 **In General**. Avanir (itself or through its Affiliates or respective sublicensees) shall have the sole right and responsibility to commercialize the Product in the Licensed Territory, as provided in this Article 6, including the responsibility for all medical affairs matters relating to the Product in the Licensed Territory. Avanir shall [***], following its receipt of Regulatory Approval of such Product in each jurisdiction in the Licensed Territory, including in accordance with the Product Launch Plan for the period such plan is in effect and to the extent applicable. Avanir shall conduct all commercialization activities with respect to the Product in the Licensed Territory in compliance with applicable Laws, in all material respects.

6.2 **Product Launch Plan**.

(a) **Product Launch Plan**. No later than [***] prior to the anticipated date of the First Commercial Sale of the Product in the United States, Avanir shall prepare and provide to the JSC and OptiNose preliminary Product launch plan summarizing generally Avanir's plans for pre-commercialization activities with respect to the Product in the United States, and the commercialization of the Product in the United States for the [***] ("**Product Launch Plan**"). Without limiting the foregoing, the Product Launch Plan shall provide for [***].

(b) **Updates to the Product Launch Plan**. Avanir shall finalize the Product Launch Plan [***] prior to the anticipated date of the First Commercial Sale of the Product in the United States and shall provide such updated Product Launch Plan to OptiNose and the JSC. Thereafter, from time to time prior to [***], Avanir shall update the Product Launch Plan as necessary, and shall submit any such updated Product Launch Plan to the JSC and OptiNose; provided that, [***]. OptiNose shall have the right to review and comment upon the initial Product Launch Plan, and any such amendments to such plan, and Avanir shall reasonably consider any comments provided by OptiNose with respect thereto.

6.3 **Compliance with OptiNose Style Guide**. OptiNose shall create guidelines for Device-specific marketing materials for the Product in the United States ("**OptiNose Style Guide**") which shall include guidelines for the following content contained within Product marketing materials: [***] OptiNose shall submit the OptiNose Style Guide to Avanir for Avanir's review and comment at least [***] days prior to Avanir's anticipated submission to the FDA of an NDA for a Product and OptiNose shall use reasonable efforts to incorporate any comments Avanir may have with respect to the OptiNose Style Guide. Avanir shall ensure that its promotional activities with respect to the Device shall comply with the OptiNose Style Guide unless [***] (a) would violate applicable Laws or (b) is [***] on the commercialization of the Product in a particular country of the Licensed Territory.

6.4 **Communications Regarding Commercialization of the Product**. Avanir and OptiNose each agrees to keep the other Party reasonably informed as to the progress of the material commercialization activities with respect to the Product conducted by or under the authority of such Party in such Party's territory (i.e., for Avanir in the Licensed Territory and for OptiNose, outside the Licensed Territory), by way of updates to the JSC at its meetings and as otherwise reasonably requested[***].

ARTICLE VII
MANUFACTURE AND SUPPLY

7.1 **Transfer of Manufacturing and Supply Responsibility**. Within [***] after the Effective Date, Avanir and OptiNose shall develop and reasonably agree upon a detailed plan, including technical transfer requirements, ("**Supply Transition Plan**") to transfer to Avanir (or its designee) responsibility for manufacturing and supply of the Device and Product for commercial use (including registration batches, validation batches, pre-launch quantities and launch quantities of the Product) in the Licensed Territory by Avanir, its Affiliates and/or sublicensees by no later than [***]. OptiNose shall [***] allocate appropriate resources to effect the transfer of such responsibility in an orderly and timely manner in accordance with the Supply Transition Plan and the timelines set forth therein. The Supply Transition Plan shall also include provisions for the assignment, at Avanir's request, of OptiNose's (or its Affiliates') agreements for the manufacture and/or supply of Devices and the Product for the Licensed Territory; provided that neither OptiNose nor any of its Affiliates shall not be obligated to assign to Avanir any such agreement that is [***] in connection with OptiNose's research, development or commercialization of the Product outside the Licensed Territory or of any products other than the Product; provided further that if any such

agreements will not be assigned by OptiNose (or its relevant Affiliate) to Avanir following the Supply Transition Date, OptiNose shall (and shall cause its Affiliates to) cooperate with Avanir to provide Avanir with the benefits of its arrangements with the relevant Third Party supplier relating to the manufacture and/or supply of the Product for the Licensed Territory, until such time as Avanir has established its own arrangements with respect thereto. Without limiting the foregoing, the Supply Transition Plan shall include the provision to Avanir of all OptiNose Know-How and OptiNose Additional Intellectual Property not previously disclosed by OptiNose to Avanir hereunder and that is [***] for the manufacture of the Device and Product in accordance with the licenses granted to Avanir under this Agreement.

7.2 **Activities Prior to Supply Transition Date**. Prior to the Supply Transition Date:

(a) OptiNose shall supply to Avanir, and be responsible for obtaining supply for itself of, all units of the Device and the Product necessary for the conduct of the activities under Development Plan, [***]; and

(b) OptiNose shall maintain and manage its relationships with any Third Party suppliers of the Device and/or the Product in a manner consistent with the Supply Transition Plan to reasonably facilitate the transfer to Avanir of responsibility for manufacturing and supply of the Product for commercial use in the Licensed Territory from and after the Supply Transition Date.

7.3 **Activities After Supply Transition Date.**

(a) Within [***] after the Supply Transition Date, OptiNose shall transfer to Avanir all remaining inventory of any unfinished Product work in progress or finished Products in OptiNose's possession, or held on behalf of OptiNose, other than (i) [***] and/or (ii) [***].

(b) After the Supply Transition Date, Avanir shall supply to OptiNose, and be responsible for obtaining supply for itself of, all units of the Product necessary for the conduct of activities under the Development Plan and the commercialization of the Product in the Licensed Territory.

(c) Within [***] after the Supply Transition Date, OptiNose shall cause its Affiliate to sell, convey, assign and transfer to Avanir all right, title and interest, in and to the equipment set forth on Exhibit 7.3(c) for the [***] price set forth in Exhibit 7.3(c), which amount shall be paid by Avanir to OptiNose within [***] following the transfer of such equipment becoming effective. OptiNose will execute and deliver to Avanir on the Supply Transition Date, a general assignment and bill of sale in a mutually agreeable form and such other instruments of conveyance, assignment and transfer as Avanir may reasonably request, in each case to convey to Avanir all right title and interest in and to such equipment. To the extent such equipment is in the possession of a Third Party, OptiNose shall provide notice to such Third Party of the conveyance, assignment and transfer of such equipment to Avanir and instruct such Third Party to hold and maintain such equipment solely for the benefit of Avanir after the Supply Transition Date and not use such equipment for any purpose other than as expressly requested by Avanir.

(d) On and from the Supply Transition Date, as between the Parties and subject to OptiNose's rights under Section 2.1(b) Avanir shall have the exclusive right to manufacture the Product for distribution in the Licensed Territory.

7.4 **Supply of Product and Devices to OptiNose**. After the Supply Transition Date, the Parties shall cooperate, as mutually agreed, on the supply by Avanir (or its designee) to OptiNose of [***], pursuant to a separate supply agreement ("**Supply Agreement**"). If the Parties mutually agree, OptiNose and Avanir shall negotiate in good faith the terms of such Supply Agreement, which terms shall include the pricing of such [***] and/or such [***] to be supplied by Avanir (or its designee) to OptiNose and other commercially reasonable terms and conditions for agreements of this type.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

ARTICLE VIII
COMPENSATION

8.1 **License Fee**. Within [***] after the Effective Date, in consideration of past research and development expenses, Avanir shall pay to OptiNose an upfront fee of Twenty Million Dollars ($20,000,000) in accordance with Section 8.5 below. Such upfront fee shall be non-creditable against any other payments due hereunder.

8.2 **Milestones.**

(a) **Development Milestone Payments**. Avanir shall make the following one-time milestone payments to OptiNose based on the achievement by Avanir, its Affiliate or sublicensee (or with respect to the Successful Completion of the Head to Head Trial, the achievement by OptiNose or its Affiliates) of each of the milestone events set forth below by a Product covered by a Valid Claim (each, a "**Development Milestone**") and in accordance with Section 8.2(c) below (except as expressly provided in the table below with respect to the first Development Milestone). For clarity, each milestone payment by Avanir to OptiNose under this Section 8.2(a) shall be payable only once, regardless of the number of times achieved, and in no event shall the aggregate amount to be paid by Avanir under this Section 8.2(a) exceed Forty Million Dollars ($40,000,000).

Milestone No.	Milestone Event	Milestone Payment
1	Successful Completion of the Head to Head Trial	$10,000,000, payable as follows:

		a) (a)$2,500,000, following the achievement of such Development Milestone event; and (b)$7,500,000, following receipt of the first Regulatory Approval for such a Product in the United States; provided that, the foregoing payments (i.e., a total payment of $10,000,000) shall be made at the same time if Successful Completion of the Head to Head Trial is achieved following receipt of the first Regulatory Approval for a Product in the United States.
2	Receipt of the first Regulatory Approval for such a Product in the United States	$30,000,000

(b) **Sales Milestones Payments**. Avanir shall make the following one-time sales milestone payments to OptiNose following the end of the first Contract Year in which Annual Net Sales of Products reach the specified thresholds (each, a "**Sales Milestone**") as set forth in this Section 8.2(b); [***]. Each milestone payment by Avanir to OptiNose under this Section 8.2(b) shall be payable only once, and in no event shall the aggregate amount to be paid by Avanir under this Section 8.2(b) exceed [***].

Sales Milestone	Milestone Payment
Annual Net Sales of Products exceed [***]	[***]
Annual Net Sales of Product exceed [***]	[***]
Annual Net Sales of Product exceed [***]	[***]
Annual Net Sales of Product exceed [***]	[***]

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(c) **Reporting and Payments**. Avanir shall notify OptiNose in writing within [***] after the achievement of each Development Milestone set out in Section 8.2(a) and within [***] after the end of the [***] in which the achievement of each Sales Milestone set out in Section 8.2(b) occurs. Within (i) [***] of the achievement of the applicable Development Milestone and (ii) [***] of the end of the [***] during which the applicable Sales Milestone was achieved, Avanir shall pay OptiNose the corresponding payments due in accordance with Section 8.5 below. Except as otherwise expressly provided herein, each payment under this Section 8.2 shall be non-creditable against any other payments due hereunder.

8.3 **Royalties.**

(a) **Royalty Rates**. Subject to Section 8.3(c) below, in consideration for the rights and licenses granted to Avanir under this Agreement, Avanir shall pay to OptiNose royalties at the rates set forth below on Net Sales of Products during the Royalty Term in each country of the Licensed Territory ("**Royalty**"); [***].

Annual Net Sales of Products	Royalty Rate
For that portion of Annual Net Sales of Products less than or equal to [***]	[***]
For that portion of Annual Net Sales of Products exceeding [***] but less than or equal to [***]	[***]
For that portion of Annual Net Sales exceeding [***]	[***]

(b) **Royalty Reports and Payment.**

(i) *Royalty Reports*. Within [***] after the [***] in which the First Commercial Sale of a Product in the Licensed Territory is made by Avanir, its Affiliate or sublicensee, Avanir shall deliver to OptiNose a report (each, a "**Royalty Report**") setting out, on a country-by-country basis:

(A) gross sales of the Product in the relevant Fiscal Quarter, and the calculation of Net Sales of Product from such gross sales; and

(B) the amount of the Royalty due to OptiNose, if any, calculated in accordance with Section 8.3(a) above.

(ii) *Royalty Payment*. Simultaneously with the delivery of each such Royalty Report, Avanir shall pay to OptiNose the Royalty, if any, due to OptiNose for the [***] covered by such report, in accordance with Section 8.5 below. If no Royalty is due for such [***], Avanir shall so report.

(c) **One Royalty**. No more than one Royalty payment shall be due under this Agreement with respect to a sale of a particular Product (e.g., even if such Product is covered by multiple Valid Claims). No Royalty shall be payable under this Section 8.3 with respect to sales or other dispositions of Products for use in [***].

(d) Avanir's obligation to pay royalties under this Section 8.3 shall continue, on a country-by-country basis, with respect to sales of Product in such country of the Licensed Territory until the Lawful Entry of the first Generic Product in such country in the Licensed Territory (and the period prior to such Lawful Entry during which Avanir is obligated to pay royalties, the "**Royalty Term**"); provided however, that Avanir shall not have any obligation to pay Royalties or any other amounts with respect to sales of Products in a particular country of the Licensed Territory during any period in which a Generic Product(s) is or are commercially available. Following the expiration of the Royalty Term in a particular country, no further royalties or milestone amounts shall be payable by Avanir, its Affiliates or sublicensees with respect to that Product in such country.

8.4 **Taxes.**

(a) **Payment of Tax**. Each Party shall be solely responsible for the payment of any and all taxes levied on its income arising directly or indirectly from the efforts of the Parties under this Agreement. If applicable Laws require that taxes be deducted and withheld from a payment made by Avanir to OptiNose pursuant to this Article 8, Avanir shall (i) deduct those taxes from the payment; (ii) pay the taxes to the proper taxing

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authority; and (iii) send evidence of the obligation together with proof of payment to OptiNose within sixty (60) days following that payment. OptiNose shall indemnify and hold harmless Avanir against any withholding tax liability (included related penalties and interest) assessed against Avanir in connection with any payments pursuant to this Article 8.

(b) **Cooperation; Tax Residence Certificate**. The Parties shall cooperate and use Commercially Reasonable Efforts to reduce the taxes attributable to the payments made hereunder. In addition, OptiNose shall provide Avanir any tax forms that may be reasonably necessary in order for Avanir not to withhold tax or to withhold tax at a reduced rate under any applicable bilateral income tax treaty, including appropriate certification from relevant revenue authorities that OptiNose is a tax resident of a jurisdiction that is a party to such income tax treaty (a "**Tax Residence Certificate**"). Upon the receipt thereof, any deduction and withholding of taxes shall be made at the appropriate treaty tax rate.

(c) **Assessment**. Avanir or OptiNose may, at its own expense, protest any assessment, proposed assessment, or other claim by any Governmental Authority for any additional amount of taxes, interest or penalties or seek a refund of such amounts paid if permitted to do so by applicable law. The other Party shall reasonably cooperate with the protesting Party, at its request and expense, in any protest by providing records and such additional information as may reasonably be necessary for such Party to pursue such protest.

8.5 **Payment Method**. Unless otherwise expressly stated in this Agreement, all amounts specified in, and all payments to be made under, this Agreement shall be in United States Dollars. Unless Avanir and OptiNose otherwise agree, all payments shall be made by wire transfer of immediately available funds in U.S. Dollars into an account designated in writing by the Party to whom such payment is due. If any currency conversion shall be required in connection with the payment of any royalties or other amounts under this Agreement, such conversion shall be made by using the average of the exchange rates for the purchase and sale of United States Dollars reported by *The Wall Street Journal* on the last business day of the Fiscal Quarter to which such Royalty or other payments relate.

8.6 **Records; Audits.**

(a) Avanir shall maintain, and shall require its Affiliates and sublicensees to maintain, complete and accurate records in sufficient detail to permit OptiNose to confirm the accuracy of (i) the calculation of Net Sales, Royalties and the achievement of Sales Milestones under this Agreement, and (ii) the calculation of Joint Development Costs incurred during the Term by Avanir or its Affiliates. Upon at least [***] prior notice, Avanir shall, and shall require its Affiliates and use reasonable efforts to require its sublicensees to, make such records available during regular business hours at such Party's principal place of business for a period of [***] from the end of the Fiscal Year to which they pertain for examination, and not more than [***] each Fiscal Year, by an independent certified public accountant from a nationally recognized firm in the United States selected by OptiNose, for the sole purpose of verifying the accuracy of the financial reports furnished by Avanir pursuant to this Agreement; provided that Avanir may require such accountant(s) to enter into a customary confidentiality agreement for arrangements of such type. Such accountants shall disclose to OptiNose, with a copy to Avanir, only whether the (A) Net Sales, Royalties and other payments hereunder are correct or incorrect; (B) whether the calculation of Joint Development Costs incurred by Avanir is accurate, and the amount of discrepancy, if any, in either case; and/or (C) if it believes in good faith that Avanir is in breach of any of its payment obligations hereunder. No other information shall be provided to OptiNose. With respect to Royalties and other payments owed to OptiNose hereunder, any amounts shown to be owed but unpaid shall be paid within [***] from the accountant's report. Any amounts shown to have been overpaid shall be refunded within [***] from the accountant's report. OptiNose shall bear the full cost of such audit unless such audit discloses an underpayment of more than [***] of the amount actually owed during the applicable Fiscal Year, in which case Avanir shall reimburse OptiNose for its out-of-pocket expenses incurred for such audit. OptiNose shall hold all information disclosed to it under this Section 8.6(a) and all Royalty Reports delivered by Avanir pursuant to Section 8.3(b) as Confidential Information of Avanir.

(b) OptiNose shall, and shall require its Affiliates to, maintain complete and accurate records in sufficient detail to permit Avanir to confirm the accuracy of Joint Development Costs incurred by OptiNose under

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this Agreement. Upon [***] prior notice, OptiNose shall, and shall require its Affiliates to, make such records shall be available during regular business hours for a period of [***] from the end of the Fiscal Year to which they pertain for examination, and not more than [***] each Fiscal Year, by an independent certified public accountant selected by Avanir from a nationally recognized firm in the United States, for the sole purpose of verifying the accuracy of the Joint Development Costs reported by OptiNose pursuant to this Agreement; provided that OptiNose may require such accountant(s) to enter into a customary confidentiality agreement for arrangements of such type. Such accountants shall disclose to Avanir, with a copy to OptiNose, only whether: (A) the calculation of Joint Development Costs incurred by Avanir, are correct or incorrect; (B) the amount of discrepancy, if any; and (C) if it believes in good faith that OptiNose is in breach of any of its payment obligations hereunder. No other information shall be provided to Avanir. In the event the audit reveals an error in the calculation of any Joint Development Costs previously reported by OptiNose, such Joint Development Costs shall be adjusted for purposes of this

Agreement. Avanir shall bear the full cost of such audit unless such audit discloses an overstatement of more than [***] of the Joint Development Costs actually incurred by OptiNose during the applicable Fiscal Year, in which case OptiNose shall reimburse Avanir for its out-of-pocket expenses incurred for such audit. Avanir shall hold all information disclosed to it under this Section 8.6(b) as Confidential Information of OptiNose.

ARTICLE IX
INTELLECTUAL PROPERTY MATTERS

9.1 **Ownership of Device Improvements and Other Intellectual Property**

(a) Inventorship of all inventions and discoveries conceived, reduced to practice, discovered or made in the performance of activities under or pursuant to this Agreement, whether or not patentable, shall be determined in accordance with U.S. patent laws, except as otherwise expressly stated in this Agreement. Authorship of all works created, and/or any other intellectual property generated, in the performance of activities under or pursuant to this Agreement shall be determined in accordance with United States copyright laws or other applicable United States intellectual property laws, except as otherwise expressly stated in this Agreement.

(b) As between Avanir and OptiNose, OptiNose shall be the owner of all Device Improvements. Avanir agrees to assign, and hereby does assign, to OptiNose all of its and its Affiliates right, title and interest in and to any Device Improvement.

(c) As between Avanir and OptiNose, ownership of all other inventions and discoveries conceived, reduced to practice, discovered or made or created during the Term of this Agreement shall be determined consistent with inventorship, as determined pursuant to Section 9.1(a).

(d) Each Party shall execute all further instruments to document, record or perfect the Party's respective ownership consistent with this Section 9.1 as reasonably requested by the other Party.

9.2 **Prosecution and Maintenance of OptiNose Patents.**

(a) **[***]**.

(b) **[***]**.

(c) **Certain Definitions**. For purposes of this Section 9.2, "**Prosecution and Maintenance**" (including variations such as "**Prosecute and Maintain**") shall mean, with respect to a Patent, preparing, filing and doing all other lawfully permitted acts to initiate an application for and further the pre-grant/pre-issuance prosecution and post-grant/post-issuance prosecution and maintenance of a Patent. Also, as used in this Section 9.2, to "abandon" a Patent shall include deciding not to initiate or continue Prosecution or Maintenance of a Patent in the United States Patent & Trademark Office or a corresponding Governmental Authority.

(d) **Cooperation**. Each Party shall cooperate with the other Party in connection with all activities relating to the Prosecution and Maintenance of the OptiNose Patents undertaken by such other Party

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pursuant to this Section 9.2, including: (i) making available in a timely manner any documents or information such other Party reasonably requests to facilitate such other Party's Prosecution and Maintenance of the OptiNose Patents pursuant to this Section 9.2; and (ii) if and as appropriate, signing (or causing to have signed) all documents relating to the Prosecution and Maintenance of any OptiNose Patents by such other Party. Each Party shall also promptly provide to the other Party all information reasonably requested by such other Party with regard to such Party's activities pursuant to this Section 9.2, and if requested, permit such other Party to participate, at its own expense, in any opposition, interference, appeal or similar proceeding with respect to a OptiNose Patent, to the extent the same are directed to any Product, and/or manufacturing and/or use thereof, in the Licensed Territory, so long as such actions are not adverse to the Party Prosecuting and Maintaining such Patent. All information disclosed by one Party to the other pursuant to this Section 9.2 shall be subject to the terms of Article 12 (Confidentiality).

9.3 **Enforcement.**

(a) **Notice**. In the event that OptiNose or Avanir becomes aware of any actual, possible, constructive, direct, indirect, threatened or suspected infringement or misappropriation within or outside the Licensed Territory (hereinafter referred to as "**Infringement**") of any OptiNose Patent and/or OptiNose Trademark by a Third Party ("**Infringer"**), that Party shall promptly notify the other Party in writing.

(b) **[***] Initial Control of Enforcement Actions**. [***] has the first right to initiate Infringement proceedings or take other appropriate actions against an Infringer in the Licensed Territory, at its expense. If [***] exercises such right, [***] shall use [***] to enforce the OptiNose Patents and/or OptiNose Trademarks, as applicable, against an Infringer in the Licensed Territory. In any event, [***] shall notify [***] and shall reasonably consult with [***] prior to taking any steps to enforce any OptiNose Patents and/or OptiNose Trademarks, as applicable, against an Infringer in the Licensed Territory. [***] shall have the right to participate in, including joining as a party in, any enforcement action undertaken by [***] against an Infringer in the Licensed Territory, using [***] own counsel and at [***] expense, and if [***] exercises such right of joinder, [***] shall take all necessary actions to give effect to the same. For clarity, it is understood that such right of joinder is not intended to equate to a separate right by [***] to enforce the OptiNose Patents and/or OptiNose Trademarks, as applicable (subject to Section 9.3(c) below) and, in the event, [***] exercises its right to join in an enforcement action, [***] shall not [***] in such action and shall be obligated to [***] on the terms [***]

(c) **[***] Step-In Enforcement Rights**. If within [***] of notice of an Infringement in the Licensed Territory, [***] does not initiate proceedings against an Infringer, or fails to notify [***] in writing of its intent to take timely appropriate action, against an Infringer, then [***] shall be entitled to initiate Infringement proceedings or take other appropriate action against such Infringer at its own expense.

(d) **Settlement**. Subject to this Section 9.3(d), [***] shall use [***] in connection with negotiating and entering into any settlement with an Infringer not to adversely impact [***] economic interest in the Product in a manner different from [***] (and, if any, its other licensees') economic interests in any other OptiNose product. Without limiting the foregoing, [***] shall not, [***] enter into any settlement with an Infringer, or make any admissions or assert any position in such action, that would be reasonably likely to: [***].

(e) **Recovery**. Avanir and OptiNose shall recover their respective attorneys' fees and other actual out-of-pocket expenses, or proportionate percentages thereof, associated with any actions against an Infringer undertaken pursuant to this Section 9.3 or settlement thereof from any resulting recovery made by either Party. Any excess amount of such a recovery [***]. Accordingly: (i) if OptiNose is the controlling Party with respect to any actions against an Infringer, [***]; and (ii) if Avanir is the controlling Party with respect to any actions against an Infringer, [***]. Any excess amount of such a recovery [***]. Any excess amount of such a recovery [***].

(f) **Cooperation**. Without limiting Section 9.3(b), above, the Parties shall keep one another informed of the status of their respective activities regarding any action against an Infringer, including any litigation or settlement thereof concerning an Infringement. In addition, each Party shall assist one another and cooperate in any action undertaken against an Infringer pursuant to this Section 9.3 at the other's reasonable request, and at the expense of the Party conducting such action (including joining as a party plaintiff to the extent necessary or

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requested by the other Party). Without limiting the foregoing, in connection with any litigation against an Infringer undertaken by either Party, such Party will provide the other Party with copies of all material filings at least [***] prior to filing. The Party not taking such action shall have the opportunity to review and comment on such filings, and the Party taking such action will use reasonable efforts to incorporate the other Party's comments thereon, to the extent not inconsistent with the Party taking such action's litigation and/or defense strategy.

9.4 **Third Party Infringement Claims**. If the production, sale or use of any Product in the Licensed Territory pursuant to this Agreement results in a claim, suit or proceeding alleging patent Infringement (collectively, "**Third Party Infringement Actions**") against OptiNose or Avanir or their respective Affiliates, licensees or sublicensees, such Party shall promptly notify the other Party hereto in writing. OptiNose shall have the first right, but not the obligation, to direct and control the defense of Third Party Infringement Actions and Avanir may participate in the defense and/or settlement thereof, at its own expense with counsel of its choice; provided, however, that if the Third Party Infringement Action is filed against Avanir, OptiNose shall: (i) notify Avanir of its intention to assume control of the defense and actually initiates the defense of such Third Party Infringement Action within [***] of Avanir or OptiNose first becoming aware of the same; and (ii) indemnify and hold harmless Avanir and the Avanir Indemnitees against any Liabilities arising from such Third Party Infringement Action and/or OptiNose's control of the defense thereof, [***]. Subject to this Section 9.4 above, the Party subject to such Third Party Infringement Action shall have the first right, but not the obligation, to direct and control the defense thereof; provided, however, that the other Party may participate in the defense and/or settlement thereof at its own expense with counsel of its choice. In any event, the Party that is subject to the Third Party Infringement Action (or the Party controlling the defense of the Third Party Infringement Action, as the case may be) agrees to keep the other Party hereto reasonably informed of all material developments in connection with any such Third Party Infringement Action. The Party who is subject to the Third Party Infringement Action (or the Party controlling the defense of the Third Party Infringement Action, as the case may be) shall not, [***] settle such Third Party Infringement Action, or make any admissions or assert any position in such Third Party Infringement Action, in a manner that would be reasonably likely to: [***]. The Parties shall assist one another and cooperate in any such action at the other's reasonable request.

9.5 **Regulatory Data Protection**.

(a) To the extent required or permitted by applicable Laws in the Licensed Territory, the Parties will use [***] to promptly, accurately and completely list, with the applicable Regulatory Authorities during the Term, all applicable OptiNose Patents in the Licensed Territory, and/or any Patents covering the Product in the Licensed Territory that are Controlled by Avanir, for any Product that Avanir intends, or has begun, to commercialize in the Licensed Territory and that have become the subject of Marketing Approval Application submitted to FDA or other Regulatory Authority in the Licensed Territory, such listings to include all so called "Orange Book" listings required under the Hatch-Waxman Act and all so called "Patent Register" listings as required in Canada.

(b) In connection with such listings, the Parties will meet to evaluate and identify all applicable OptiNose Patents and Patents in the Licensed Territory that are Controlled by Avanir. OptiNose will retain final decision making authority as to the listing of all applicable Patents for any Product regardless of which Party Controls such Patent.

9.6 **Trademarks**. As between the Parties, Avanir shall own all right, title and interest in and to any trademarks other than the OptiNose Trademarks adopted by Avanir specifically for use with the Product within the Licensed Territory (such trademarks excluding any trademarks, names and/or logos related to the corporate name of Avanir or any of its Affiliates, "**Avanir Trademarks**"), and shall have the right to control the registration, filing, maintenance and enforcement thereof. Avanir shall and hereby does, grant OptiNose a non-exclusive right to use the Avanir Trademarks in connection with the sale of any Product outside of the Licensed Territory. OptiNose shall not at any time do or authorize to be done any act or thing which is likely to materially impair the rights of Avanir in any Avanir Trademark, and shall not, except for the license expressly granted herein, at any time claim any right or interest in or to such marks or the registrations or applications therefor. To the extent necessary to preserve Avanir's legal rights in the Avanir Trademarks, OptiNose shall submit representative marketing materials, packaging or

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Product displaying any Avanir Trademarks to Avanir for Avanir's review and approval prior to the first use of such marketing materials, packaging or Product and prior to any subsequent change or addition to such marketing materials, packaging or Product; [***].

9.7 **Acquisition**. OptiNose shall notify Avanir in writing within [***] of the closing of any Acquisition (as defined below). During the [***] period following its receipt of such notice from OptiNose, Avanir shall have the right to [***] upon notice to OptiNose and from and after the date of such notice [***]. Notwithstanding any other provision of this Agreement, in the event of an Acquisition, such Acquisition shall not provide Avanir with a license, rights or access to, nor shall the OptiNose IP include: (a) any [***] (collectively, the "**Acquiring Entities**") prior to the Acquisition; or (b) any [***] that such Acquiring Entities subsequently [***], or [***] or [***] under this Agreement. For purposes of this Section 9.7, "**Acquisition**" shall mean: (i) a merger involving OptiNose or OptiNose, Inc., in which the shareholders of OptiNose or OptiNose, Inc., as applicable, immediately prior to such merger cease to control (as defined in Section 1.1) OptiNose or OptiNose, Inc., as applicable, after such merger; (ii) a sale of all or substantially all of the assets of OptiNose or OptiNose, Inc., to an acquiring entity; or (iii) a sale of a controlling (as defined in Section 1.1) interest in OptiNose, Inc. to an acquiring entity.

ARTICLE X
REPRESENTATIONS AND WARRANTIES

10.1 **Mutual Representations and Warranties**. OptiNose and Avanir each hereby represents, warrants, and covenants (as applicable) to the other as follows, as of the Effective Date:

(a) **Corporate Existence and Power**. It is a company or corporation duly organized, validly existing, and in good standing under the Laws of the jurisdiction in which it is incorporated, and has full corporate power and authority and the legal right to own and operate its property and assets and to carry on its business as it is now being conducted and as contemplated in this Agreement, including the right to grant the rights and licenses granted by it hereunder.

(b) **Authority and Binding Agreement**. (i) It has the corporate power and authority and the legal right to enter into this Agreement and perform its obligations hereunder; (ii) it has taken all necessary corporate action on its part required to authorize the execution and delivery of the Agreement and the performance of its obligations hereunder; and (iii) the Agreement has been duly executed and delivered on behalf of such Party, and constitutes a legal, valid, and binding obligation of such Party that is enforceable against it in accordance with its terms.

(c) **No Conflict; Covenant**. Neither it nor any of its Affiliates is not a party to, and during the Term it shall not enter into, any agreement that would materially prevent it from granting the rights and licenses granted to the other Party under this Agreement or performing its obligations under the Agreement and the execution and performance by it of its obligations hereunder will not constitute a breach of, or conflict with, its organizational documents nor any other agreement or arrangement, whether written or oral, by which it is bound.

10.2 **Additional Representations, Warranties and Covenants of OptiNose**. OptiNose represents, warrants and covenants to Avanir, on behalf or itself and its Affiliates, as follows:

(a) **Title to OptiNose IP**. OptiNose Controls all right, title and interest in and to the Patents listed on Exhibit 1.28, the trademarks listed on Exhibit 1.29 and the items existing as of the Effective Date within the OptiNose Know-How. To OptiNose's knowledge as of the Effective Date, the Patents listed on Exhibit 1.28 are the only Patents Controlled by OptiNose or its Affiliates, or in which OptiNose or its Affiliates have any rights, that are necessary to research, develop, use, practice and/or commercialize the Product in the Licensed Territory and/or to manufacture the Product and/or Device anywhere in the world. As of the Effective Date, OptiNose and its Affiliates do not have any rights in any technology or intellectual property related to the Product and/or Device that are not Controlled by OptiNose. At all times during the Term, OptiNose shall Control all rights in any technology or intellectual property related to the development, manufacture and/or commercialization of the Product and/or

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Device, such that OptiNose can fulfill all of its obligations to Avanir, and Avanir can exercise its rights, under this Agreement. For clarity, the foregoing sentence shall not limit the right of OptiNose to grant licenses to any Third Party, subject to the rights of Avanir hereunder, including pursuant to Articles II and IX of this Agreement;

(b) **No Conflicting Rights**. Neither OptiNose nor any of its Affiliates has granted, nor shall they grant during the Term, any licenses or other rights in any of OptiNose Patents, OptiNose Know-How or other OptiNose IP that conflict with the rights granted to Avanir under this Agreement or would otherwise prevent Avanir from exercising its rights or performing its obligations hereunder;

(c) **No Liens on OptiNose IP**. As of the Effective Date, the OptiNose IP is free and clear of all liens, claims, security interests or other encumbrances of any kind, and neither OptiNose nor any of its Affiliates shall permit the OptiNose IP to become encumbered by any liens, claims, security interests or other encumbrances of any kind;

(d) **Non-Infringement of OptiNose Patents by Third Parties**. As of the Effective Date, to the best of OptiNose's and its Affiliates' knowledge, there are no activities by Third Parties that would constitute Infringement of any Claims of the OptiNose Patents;

(e) **Non-Infringement of Third Party Rights**. As of the Effective Date, to the best of OptiNose's and its Affiliates' knowledge, the development, manufacture, use, or sale or other commercialization of the Product and/or Device in the Licensed Territory, and the manufacture of the Product and/or Device outside the Licensed Territory, does not infringe any claim of an issued Patent or published claim of a Patent application (as if any such published claim were issued) owned by a Third Party;

(f) **Non-Claims of Third Party Rights**. As of the Effective Date, neither OptiNose nor any of its Affiliates has received any written notice, claim or demand of any Third Party that the development, manufacture, use, or sale or other commercialization of the Product and/or Device in the Licensed Territory, or the manufacture of the Product and/or Device outside the Licensed Territory, infringes or misappropriates the intellectual property rights of such Third Party;

(g) **Non-Invalidity and Non-Unenforceability**. As of the Effective Date, (i) to the best of OptiNose's and its Affiliates' knowledge, all issued OptiNose Patents are valid and enforceable; (ii) to the best of OptiNose's and its Affiliates' knowledge, none of the OptiNose Patents are subject to any pending or threatened re-examination, opposition, interference, litigation, or other post-grant proceedings; and (iii) to the best of OptiNose's and its Affiliates' knowledge, there are no acts or omissions of OptiNose or any of its Affiliates that would (A) constitute inequitable conduct, fraud or misrepresentation with respect to any Patent application included within OptiNose Patents, or (B) render any Patent within the OptiNose Patents invalid or unenforceable in whole or in part;

(h) **Non-Action or Claim**. As of the Effective Date, there are no actual or pending, and to the best of OptiNose's and its Affiliates' knowledge, no alleged or threatened, adverse actions, suits, claims, interferences, post-grant proceedings, or formal governmental investigations, or settlements or judgments, involving the Product and/or Device, and/or the OptiNose IP by or against OptiNose or any of its Affiliates in or before any Governmental Authority. In particular, to the best of OptiNose's and its Affiliates' knowledge, there is no pending or threatened product liability or patent action involving the use or administration of the Product and/or Device;

(i) **No Payments**. As of the Effective Date, there are no royalties, fees, honoraria or other payments payable by OptiNose or any of its Affiliates to any Third Party by reason of the ownership, development, use, license, sale or disposition of the OptiNose IP or the Product and/or Device, other than salaries and sales commissions paid to employees and sales agents in the ordinary course of business;

(j) **Clinical Trials**. As of the Effective Date, there are no ongoing clinical trials related to the Product in the Licensed Territory either conducted by or on behalf of OptiNose or for which OptiNose provides supply of such Product, other than the Head to Head Trial;

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(k) **Product Marks**. As of the Effective Date, there are no product-specific brands or trademarks that have been used with any Product and/or Device, are used with any Product and/or Device, or are held and intended for use with any Product and/or Device, by OptiNose or its Affiliates, other than the Existing OptiNose Trademarks listed on Exhibit 10.2(k);

(l) **No Debarment**. In the course of the development of the Device or the Product, neither OptiNose, nor any of its Affiliates, nor their permitted contractors has been or have used any employee or consultant who has been excluded or debarred by any Regulatory Authority or subject to any exclusions or sanctions by the FDA, Office of Inspector General, or any other Governmental Authority or Regulatory Authority or professional body, or, to the best of OptiNose's and its Affiliates' knowledge, was or is the subject of debarment proceedings by a Regulatory Authority ("**Debarred Person**"). OptiNose shall immediately notify Avanir in writing if it or any of its Affiliates become, or become aware that any person or entity who participated in the development or manufacture of the Product is or becomes, a Debarred Person;

(m) **No Material Misrepresentation**. OptiNose and its Affiliates have not, nor to the best of OptiNose's and its Affiliates' knowledge, has any Third Party acting under authority of OptiNose or any of its Affiliates, made an untrue statement of a material fact to any Regulatory Authority in the Licensed Territory with respect to any Product, or intentionally failed to disclose a material fact required to be disclosed to any Regulatory Authority with respect to any Product. OptiNose and its Affiliates have, and to the best of OptiNose's and its Affiliates' knowledge, such Third Parties have complied in all material respects, and shall continue to comply in all material respects, with all regulatory requirements in the Licensed Territory with respect to the Product. All Information within the OptiNose Know-How has, to the OptiNose's and its Affiliates' knowledge, been generated in material compliance with applicable Laws, including, if applicable ICH guidelines;

(n) **Disclosure**. As of the Effective Date, to the best of OptiNose's and its Affiliates' knowledge, no material data or other Information exists which has not been disclosed by OptiNose to Avanir that would demonstrate that any Product is reasonably likely not to be approvable or otherwise is material to the transactions contemplated hereby. OptiNose has not, up through and including the Effective Date, intentionally or negligently omitted to furnish Avanir with (i) any Information in its or its Affiliates' Control or possession, or of which it or any of its Affiliates is aware, concerning any of the OptiNose IP or the activities contemplated by this Agreement, which OptiNose reasonably believes in good faith would be material to a decision by a pharmaceutical company similarly situated to Avanir to enter into this Agreement and to undertake the commitments and obligations set forth herein; and/or (ii) the identity of each product under development for the treatment of headaches, including migraine headaches, by or under the authority of OptiNose or any of its Affiliates and with respect to which an IND has been submitted anywhere in the world or being commercialized by or under the authority of OptiNose or any of its Affiliates; and

(o) **Corporate Structure**. As of the Effective Date: (i) OptiNose, Inc., a Delaware corporation with its principal place of business at 1010 Stony Hill Road, Suite 375, Yardley, PA, 19067, U.S.A. is the sole shareholder of all of the issued and outstanding capital stock of OptiNose and OptiNose US, Inc., a Delaware corporation, with its principal place of business at 1010 Stony Hill Road, Suite 375, Yardley, PA, 19067, U.S.A. and (ii) OptiNose is the sole shareholder of all of the issued and outstanding capital stock of OptiNose UK Limited, a United Kingdom corporation with its principal place of business at Berkeley House, Hunts Rise, South Marston Park, Wiltshire SN3 4TG.

(p) As of the Effective Date: (i) OptiNose, Inc. is the ultimate parent of OptiNose pursuant to Section 801.1(a)(3) of the HSR Rules; and (ii) OptiNose, Inc., including all entities which it controls directly or indirectly in accordance with Section 801.1(b) of the HSR Rules, has (A) annual net sales, as defined in Section 801.11 of the HSR Rules, less than US$141.8 million and (B) total assets, as defined in Section 801.11 of the HSR Rules, valued at less than US$141.8 million. For the purpose of this Section 10.2(p): "**HSR Act**" means the Hart-Scott-Rodino Antitrust Improvements Act of 1976; and "**HSR Rules**" means the rules, regulations, statements, and interpretations under the HSR Act, including those promulgated under 16 C.F.R. Parts 801, 802, and 803.

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10.3 **Representations, Warranties and Covenants Regarding Third Party Agreements**. OptiNose further represents, warrants and covenants to Avanir as follows:

(a) As of the Effective Date, there are no agreements between OptiNose or its Affiliates and any Third Parties (i) pursuant to which OptiNose or its Affiliate has in-licensed any OptiNose IP in the Licensed Territory, (ii) pursuant to which OptiNose or its Affiliate obtains, or has the right to obtain, supplies of Product or otherwise related to the manufacture or supply of any Product to OptiNose or its Affiliate other than those agreements listed on Exhibit 10.3 or otherwise disclosed to Avanir prior to the Effective Date in the electronic data room, or (iii) that are otherwise necessary for Avanir to exercise its rights or perform its obligations hereunder, other than those agreements listed on Exhibit 10.3 (collectively, "Third Party Agreements"); and

(b) (i) OptiNose has provided Avanir complete and correct copies of the Third Party Agreements as the same are in effect as of the Effective Date; (ii) to the best of OptiNose's and its Affiliates' knowledge, each Third Party Agreement is in full force and effect as of the Effective Date and, to the extent not transferred to Avanir under the Supply Transition Plan, OptiNose shall (or shall cause its applicable Affiliate to) use diligent efforts to maintain and enforce such Third Party Agreement in full force and effect, in each case in accordance with its terms and conditions during the Term; (iii) as of the Effective Date, no notice of default or termination has been received or given by OptiNose or its applicable Affiliate under any Third Party Agreement; (iv) as of the Effective Date, to the best of OptiNose's and each Affiliate's knowledge, there is no act or omission by OptiNose or its applicable Affiliate that would provide a right to terminate any Third Party Agreement; and (v) during the Term, neither OptiNose nor its applicable Affiliate shall terminate, amend, waive or otherwise modify (or provide consent with respect to any termination, amendment, waiver or modification of) the rights under any Third Party Agreement that OptiNose or its Affiliates continue to hold after the Supply Transition Date in any manner that diminishes the licenses or rights granted to Avanir hereunder, requires an increase in any obligation by OptiNose hereunder with respect to the OptiNose IP or the Product and/or Device, impairs Avanir's ability to perform its obligations hereunder or otherwise adversely affects Avanir's rights hereunder; in all cases, without the prior consent of Avanir (which consent shall not be unreasonably withheld, conditioned, or delayed).

(c) Maintenance and Enforcement of Third Party Agreements. In the event of any notice of breach by OptiNose or its Affiliates, as applicable, of any Third Party Agreement, OptiNose shall immediately notify Avanir in writing. In the event of any notice of breach by the other party of the applicable Third Party Agreement in a manner that will or is likely to adversely affect Avanir's rights or obligations under this Agreement, OptiNose shall immediately notify Avanir in writing.

10.4 **Additional Representations, Warranties and Covenants of Avanir:** Avanir further represents, warrants and covenants to OptiNose as follows:

(a) **No Debarment**. In the course of developing Product, neither Avanir, nor any of its Affiliates, nor their permitted contractors will knowingly use any Debarred Person. Avanir shall immediately notify OptiNose in writing if it or any of its Affiliates become aware that any person or entity who participated in the development or manufacture of the Product and/or Device is or becomes a Debarred Person; and

(b) **No Material Misrepresentation**. Avanir and its Affiliates and its sublicensee will not knowingly make any untrue statement of a material fact to any Regulatory Authority in the Licensed Territory with respect to the Product and/or Device, nor intentionally fail to disclose a material fact required to be disclosed to any Regulatory Authority with respect to any Product and/or Device. Avanir and its Affiliates will comply in all material respects with all regulatory requirements in the Licensed Territory applicable to the Product and/or Device.

ARTICLE XI
INDEMNIFICATION

11.1 **Indemnification by OptiNose**. OptiNose shall defend, indemnify, and hold Avanir and Avanir's Affiliates and their respective sublicensees and distributors and in each case, their respective officers, directors, employees, and agents (the "**Avanir Indemnitees**") harmless from and against any and all liabilities, damages,

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expenses, and recoveries (including court costs and reasonable attorneys' fees and expenses) (collectively, "**Liabilities**") resulting from Third Party claims, suits, proceedings, actions, and demands (collectively, "**Claims**") to the extent that such Claims arise out of, are based on, or result from: (a) the development, manufacture, storage, handling, use, promotion, sale, offer for sale, importation or other commercialization of the Product by or on behalf of OptiNose or its Affiliates or their respective licensees or distributors (other than Avanir, its Affiliates and sublicensees and their respective distributors), including injury or bodily or other product liability Claims in connection therewith; (b) a material breach of any of OptiNose's representations, warranties, or obligations under the Agreement; or (c) the willful misconduct or grossly negligent acts of OptiNose, its Affiliates, or their respective licensees or distributors (other than Avanir, its Affiliates and sublicensees and their respective distributors), or in each case, their respective officers, directors, and employees. The foregoing indemnity obligation shall not apply to the extent that the Avanir Indemnitees fail to comply with the indemnification procedures set forth in Section 11.3 and OptiNose's defense of the relevant Claims is prejudiced by such failure, or to the extent that any Liability arises from, is based on, or results from (i) a material breach of any of Avanir's representations, warranties, or obligations under the Agreement; or (ii) the willful misconduct or grossly negligent acts of Avanir, its Affiliates, or their respective sublicensees or distributors, or in each case, their respective officers, directors, and employees.

11.2 **Indemnification by Avanir**. Avanir shall defend, indemnify, and hold OptiNose and OptiNose's Affiliates and their officers, directors, employees, and agents (the "**OptiNose Indemnitees**") harmless from and against any and all Liabilities resulting from Claims to the extent that such Claims arise out of, are based on, or result from: (a) the development, manufacture, storage, handling, use, promotion, sale, offer for sale, and importation of the Product by or on behalf of Avanir or its Affiliates or their respective sublicensees or distributors after the Effective Date, including injury or bodily or other product liability Claims in connection therewith (but excluding any activities conducted by or on behalf of OptiNose or any of its Affiliates prior to the Effective Date or in connection with the Development Plan or the manufacture of the Product and/or Device during the Supply Transition Period); (b) a material breach of any of Avanir's representations, warranties, or obligations under the Agreement; or (c) the willful misconduct or grossly negligent acts of

Avanir, its Affiliates, or their respective sublicensees or distributors, or in each case, their respective officers, directors, and employees. The foregoing indemnity obligation shall not apply to the extent that the OptiNose Indemnitees fail to comply with the indemnification procedures set forth in Section 11.3 and Avanir's defense of the relevant Claims is prejudiced by such failure, or to the extent that any Liability arises from, is based on, or results from: (i) a material breach of any of OptiNose's representations, warranties, or obligations under the Agreement; or (ii) the willful misconduct or grossly negligent acts of OptiNose, its Affiliates, or their respective licensees or distributors, or in each case, their respective officers, directors, and employees.

11.3 **Indemnification Procedures**. The Party claiming indemnity under this Article 11 (the "**Indemnified Party**") shall give written notice to the Party from whom indemnity is being sought (the "**Indemnifying Party**") promptly after learning of such Claim. The Indemnified Party shall provide the Indemnifying Party with reasonable assistance, at the Indemnifying Party's expense, in connection with the defense of the Claim for which indemnity is being sought. The Indemnified Party may participate in and monitor such defense with counsel of its own choosing at its sole expense; provided, however, the Indemnifying Party shall have the right to assume and conduct the defense of the Claim with counsel of its choice. The Indemnifying Party shall not settle any Claim or engage in any actions or make any statements that would adversely affect the defense or settlement of such Claim without the prior written consent of the Indemnified Party, not to be unreasonably withheld, unless the settlement involves only the payment of money for which the Indemnified Party will be held fully harmless against. Additionally, so long as the Indemnifying Party is defending the Claim in good faith, the Indemnified Party shall not settle any such Claim or engage in any actions or make any statements that would adversely affect the defense or settlement of such Claim without the prior written consent of the Indemnifying Party, not to be unreasonably withheld.

11.4 **Limitation of Liability**. NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, PUNITIVE, OR INDIRECT DAMAGES ARISING FROM OR RELATING TO ANY BREACH OF THIS AGREEMENT, REGARDLESS OF ANY NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. NOTWITHSTANDING THE FOREGOING, NOTHING IN THIS SECTION 11.4 IS INTENDED TO OR SHALL LIMIT OR RESTRICT THE INDEMNIFICATION RIGHTS OR

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OBLIGATIONS OF ANY PARTY UNDER SECTION 11.1 OR SECTION 11.2, OR DAMAGES AVAILABLE FOR (I) A PARTY'S BREACH OF [***], (II) AVANIR'S BREACH OF ITS OBLIGATIONS UNDER [***] OR OPTINOSE'S BREACH OF ITS OBLIGATIONS UNDER [***] OR (III) EITHER PARTY'S BREACH OF ITS OBLIGATIONS UNDER [***] OR OPTINOSE'S BREACH OF ITS OBLIGATIONS UNDER [***].

11.5 **Insurance**. Each Party shall procure and maintain insurance, including product liability insurance, adequate to cover its obligations hereunder and consistent with normal business practices of prudent companies similarly situated at all times during which such Party has indemnification obligations under Section 11.1 or Section 11.2, and which insurance shall be primary in the event such Party is an Indemnifying Party with respect to a Claim. It is understood that such insurance shall not be construed to create a limit of either Party's liability with respect to its indemnification obligations under this Article 11 or that the maintenance of such insurance shall not be construed to relieve either Party of its other obligations under this Agreement. Each Party shall provide the other with written evidence of such insurance, including any policy limits, upon request. Avanir shall provide OptiNose with written notice at least [***] prior to the cancellation, non-renewal or material change in any product liability insurance policy held by it, and OptiNose shall provide Avanir with written notice at least [***] prior to the cancellation, non-renewal or material change in any general commercial insurance policy held by it. Avanir shall require each sublicensee to maintain insurance consistent with the requirements of this Section 11.5.

ARTICLE XII
CONFIDENTIALITY

12.1 **Confidentiality**. Except to the extent expressly authorized by this Agreement or otherwise agreed in writing by the Parties, during the Term and for a period of [***] thereafter (but with respect to any trade secrets, for such period of time as long as such information remains a trade secret), each Party agrees that it shall keep confidential and shall not publish or otherwise disclose and shall not use for any purpose other than as provided for in this Agreement, any Confidential Information furnished to it by the other Party pursuant to this Agreement. The confidentiality and non-use obligations set forth above shall not apply with respect to any portion of the other Party's Confidential Information that the receiving Party can demonstrate with written evidence:

(a) was already known to the receiving Party or its Affiliate, other than under an obligation of confidentiality, at the time of disclosure by the disclosing Party;

(b) was generally available to the public or otherwise part of the public domain at the time of its disclosure by the disclosing Party;

(c) becomes generally available to the public or otherwise part of the public domain after its disclosure by the disclosing Party, other than through any act or omission of the receiving Party or its Affiliates in breach of this Agreement;

(d) is disclosed to the receiving Party or its Affiliate on a non-confidential basis by a Third Party who has a legal right to make such disclosure and who did not obtain such information directly or indirectly from the disclosing Party; or

(e) is independently discovered or developed by employees or contractors of the receiving Party or its Affiliate without access to and/or use of or reference to the other Party's Confidential Information.

12.2 **Authorized Disclosure**. Each Party may disclose Confidential Information belonging to the other Party to the extent such disclosure is reasonably necessary in the following situations:

(a) exercising its or its Affiliates' rights under this Agreement, including in the case of Avanir, for the purpose of developing the Product, seeking, obtaining and maintaining Regulatory Approvals (including complying with the requirement of Governmental Authorities with respect to filing for, obtaining and maintaining Regulatory Approval of the Product) and manufacturing or commercializing the Product;

(b) Prosecuting or Maintaining Patents in accordance with Section 9.2;

(c) prosecuting or defending litigation or any arbitration proceedings as contemplated by this Agreement;

(d) complying with applicable Laws, including regulations promulgated by security exchanges, court order or administrative subpoenas or orders or otherwise submitting information to tax or other Governmental Authorities;

(e) disclosure to its or its Affiliates' employees, agents, consultants, contractors, licensees, sublicensees or others on a need-to-know basis, provided that in each case the recipient of such Confidential Information are bound by written obligations of confidentiality and non-use at least as restrictive in scope as those set forth in this Article 12 prior to any such disclosure; and

(f) in communication with existing and potential investors, consultants, advisors (including financial advisors, lawyers and accountants) and others on a need to know basis in order to further the purposes of this Agreement; provided that in connection with such disclosure, the disclosing Party shall inform each disclosee of the confidential nature of such Confidential Information and use reasonable efforts to cause each disclosee to treat such Confidential Information as confidential.

Notwithstanding the foregoing, in the event a Party is required to make a disclosure of the other Party's Confidential Information pursuant to clause (d) of this Section 12.2, it shall promptly notify the other Party of such required disclosure and shall use reasonable efforts to obtain, or to assist the other Party in obtaining, a protective order or confidential treatment limiting or preventing the required disclosure, and disclose only the minimum information necessary for such disclosure; provided that such Confidential Information disclosed accordingly shall only lose its confidentiality protection for purposes of such disclosure.

12.3 **Terms of Agreement**. Each of the Parties agrees [***], except [***]. [***] the Parties shall agree upon a mutual press release to announce the execution of this Agreement, a draft of which is attached as Exhibit 12.3, together with a corresponding Question & Answer outline for use in responding to inquiries about the Agreement; [***].

12.4 **Publication of Product Information**. Until [***], prior to its publishing, publicly presenting and/or submitting for written or oral publication a manuscript, abstract or the like that includes data generated by or under the authority of either Party in the performance of activities under the Development Plan that has not previously been published, such Party shall provide the other Party a copy thereof for its review and approval, such approval not to be unreasonably withheld, delayed, or conditioned.

12.5 **Equitable Relief**. Each Party acknowledges that its breach of this Article 12 may cause irreparable harm to the other Party, which cannot be reasonably or adequately compensated in damages in an action at law. By reasons thereof, each Party agrees that the other Party shall have the right to seek, in addition to any other remedies it may have under this Agreement or otherwise, preliminary or permanent injunctive and other equitable relief to prevent or curtail any actual or threatened breach of the obligations relating to Confidential Information set forth in this Article 12 by such Party.

ARTICLE XIII
TERM AND TERMINATION

13.1 **Term**. This Agreement shall become effective on the Effective Date and, unless earlier terminated pursuant to this Article 13, shall expire on a country by country basis upon the Lawful Entry of a Generic Product in a country in the Licensed Territory (the "**Term**"). Upon such expiration in a particular country of the Licensed Territory, the license granted to Avanir in such country of the Licensed Territory under Section 2.1 shall become a non-exclusive, fully paid-up, irrevocable and perpetual license.

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13.2 **Unilateral Termination**.

(a) **By Avanir**. Avanir shall have the right to terminate this Agreement in its entirety for any or no reason upon [***] prior written notice to OptiNose referencing this Section 13.2 at any time after [***] the Effective Date.

(b) **By OptiNose**. OptiNose shall have the right to terminate this Agreement, in the event that (i) Avanir or its Affiliates commences any Patent Challenge against OptiNose or procures or assists a Third Party to commence a Patent Challenge; or (ii) any sublicensee or co-promotion partner of Avanir with respect to the Product commences any such Patent Challenge, and within [***] following the commencement thereof, such Patent Challenge is not withdrawn or Avanir does not terminate its sublicense or co-promotion agreement with such party who commenced such Patent Challenge. For purposes of this Section 13.2(b), a "**Patent Challenge**" means any legal or administrative proceeding to revoke or challenge the validity of any of the OptiNose Patents, other than (i) a counterclaim [***], or (ii) a declaratory action proceeding [***].

13.3 **Termination for Breach**. Each Party shall have the right to terminate this Agreement in its entirety immediately upon written notice to the other Party if the other Party materially breaches its obligations under this Agreement and, after receiving written notice referencing this Section 13.3 and identifying such material breach in reasonable detail, fails to cure such breach within [***] from the date of such notice; *provided that* if the Party alleged to be in breach disputes such breach, in good faith, by written notice to the other Party within [***] following receipt of the notice of breach, then the non-breaching Party shall not have the right to terminate this Agreement pursuant to this Section 13.3 unless and until it has been determined in accordance with

Article 14 below that this Agreement, was materially breached, and the breaching Party fails to comply with its obligations hereunder within [***] after such determination. [***].

13.4 **OptiNose Rights upon Early Termination of the Agreement**. Upon the early termination of this Agreement in its entirety by either Party under Section 13.2 or Section 13.3 above, all licenses granted to Avanir under Section 2.1 shall terminate (it being understood that Avanir may continue to exercise such licenses on a non-exclusive basis after the effective date of any such termination to the extent necessary for Avanir to fulfill its obligations under this Section 13.4) and the following shall apply:

(a) **Regulatory Materials**. To the extent not prohibited by applicable Laws, Avanir shall promptly transfer and assign to OptiNose, in all events during the Wind-Down Period, all Regulatory Materials and Regulatory Approvals for the Product in the Licensed Territory;

(b) **Avanir License**. In the event this Agreement is terminated by Avanir pursuant to Section 13.2(a) or by OptiNose pursuant to Section 13.2(b) or Section 13.3 (but not if this Agreement is terminated by Avanir pursuant to Section 13.3), Avanir hereby grants to OptiNose, a [***] license (including the right to grant and authorize sublicenses) under any [***] Controlled by Avanir or its Affiliates (or its sublicensees) [***] for OptiNose to assume development and/or commercialization in the Licensed Territory of the Product then being marketed by Avanir, in each case solely (i) to develop, use, sell, offer for sale, have sold, import and otherwise commercialize such Product in the Licensed Territory or (ii) to make or have made such Product anywhere in the world; provided that OptiNose agrees not to exercise its rights under such license unless and until this Agreement is terminated by Avanir in accordance with [***] or by OptiNose in accordance with [***]. In the event of any such termination of this Agreement after [***], in consideration of the license granted under this Section 13.4(b), OptiNose shall pay to Avanir a royalty of [***] of the Net Sales of the Product by OptiNose, its Affiliates and (sub)licensees of the Product until such time as the aggregate royalties so paid by OptiNose to Avanir hereunder equal [***]. For such purposes, the provisions of Sections 1.21, 8.3(b), 8.3(c) and 8.3(d), 8.4, and 8.6(a), shall apply *mutatis mutandis*.

(c) **Transition Assistance**. In the event this Agreement is terminated by Avanir pursuant to Section 13.2(a) or by OptiNose pursuant to Section 13.2(b) or Section 13.3 (but not if this Agreement is terminated by Avanir pursuant to Section 13.3), during the Wind-Down Period, Avanir shall [***] provide such assistance as may be [***] by OptiNose or its designee, to transfer and/or transition over to OptiNose all then-existing

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commercial contractual arrangements that are necessary for OptiNose to commence or continue developing, manufacturing or commercializing the Product then being marketed by Avanir, its Affiliates or sublicensees, in the Licensed Territory, including transferring, upon request of OptiNose, any agreements or arrangements with Third Party suppliers or vendors to develop, manufacture, supply, distribute or sell or otherwise commercialize such Product in the Licensed Territory. To the extent that any contract between Avanir and a Third Party is not assignable to OptiNose, then Avanir shall reasonably cooperate with OptiNose to arrange to continue to provide such services for a reasonable time after termination, but in no event longer than the Wind-Down Period. In the event that the Agreement is terminated by OptiNose in accordance with Section 13.2(b) or Section 13.3, Avanir shall provide the assistance described in this Section 13.4(c) [***]; and

(d) **Remaining Inventories; Capital Equipment**. OptiNose shall have the right to purchase from Avanir (i) any and all of the inventory of such Product held by Avanir as of the effective date of such termination at a price equal to the actual cost of Avanir to acquire or manufacture such inventory, plus reasonable and actual Third Party shipping and handling fees (or in the case of Avanir's termination of this Agreement pursuant to Section 13.3, at a price equal to [***], and (ii) any capital equipment specific to the Product owned by Avanir at [***]. Promptly after the effective date of such termination, Avanir shall submit to OptiNose a detailed list of its remaining inventory of such Product and such Product-specific capital equipment. OptiNose shall notify Avanir whether OptiNose elects to exercise its rights under this Section 13.4(d) within [***] after receiving the notice from Avanir reporting such inventory and capital equipment as of the effective date of such termination. If OptiNose does not exercise such right, then subject to Article 8 hereof, Avanir shall have the right to sell or otherwise dispose of the Product-specific capital equipment at any time and to sell any such remaining inventory over a period of no greater than the Wind-Down Period, provided that Avanir shall continue to pay Royalties on such sales of inventory in accordance with Section 8.3.

(e) **Sublicenses**. Any contracts with sublicensees of the Product in the Licensed Territory engaged by Avanir, other than Avanir's Affiliates, shall [***]. In the event [***], then the rights of such sublicensees shall [***]. Avanir shall ensure that its Affiliates and such sublicensees (if not assigned to OptiNose pursuant to this Section 13.4(e)) shall [***].

13.5 **Rights in Bankruptcy**. All rights and licenses granted under or pursuant to this Agreement by OptiNose, and shall otherwise be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code or any non-U.S. equivalent thereof (including Norwegian bankruptcy law, if and to the extent the same is applicable), licenses of right to "intellectual property" as defined under Section 101 of the U.S. Bankruptcy Code. The Parties agree that Avanir, as licensee of certain rights under this Agreement, shall retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code or any such non-U.S. equivalent thereof. The Parties further agree that, in the event of the commencement of a bankruptcy proceeding by or against OptiNose or OptiNose, Inc. under the U.S. Bankruptcy Code or any applicable non-U.S. equivalent thereof (including, under Norwegian bankruptcy law, if and to the extent the same is applicable), Avanir shall have the right to retain any and all rights licensed to it hereunder, to the maximum extent permitted by Law (such as under Sections 365(n)(1) and 365(n)(2) of the U.S. Bankruptcy Code or any such non-U.S. equivalent thereof), subject to any royalties due to OptiNose as specified hereunder, and be entitled to a complete duplicate of (or complete access to, as appropriate) any such intellectual property and all embodiments of such intellectual property, which, if not already in Avanir's possession, shall be promptly delivered to it (a) upon any such commencement of a bankruptcy proceeding upon written request therefor by Avanir, unless OptiNose (or OptiNose, Inc.) elects to continue to perform all of its obligations under this Agreement or (b) if not delivered under clause (a), following the rejection of this Agreement by OptiNose (or OptiNose, Inc.) upon written request therefor by Avanir.

13.6 **Survival**. Upon expiration or termination of this Agreement in its entirety for any reason, this Agreement shall, except as otherwise provided herein, be of no further force and effect and neither Party shall have any further liability hereunder. Termination or expiration of this Agreement shall not affect any rights or obligations of the Parties under this Agreement that have accrued prior to the date of termination or expiration; provided that [***]. Notwithstanding anything to the contrary, the following provisions shall survive any termination or expiration of this Agreement in its entirety for the period of time specified: Articles [***] and Sections [***].

13.7 **Nonexclusive Remedy**. Exercise of any right of termination afforded to either Party under this Agreement: (a) shall not prejudice any other legal rights or remedies either Party have against the other in respect of any breach of the terms and conditions of this Agreement; and (b) shall be without any obligation or liability arising from such termination other than such obligations expressly arising from such termination.

ARTICLE XIV
DISPUTE RESOLUTION

14.1 **Disputes**. The Parties recognize that disputes as to certain matters may from time to time arise that relate to either Party's rights and/or obligations hereunder. It is the objective of the Parties to establish procedures to facilitate the resolution of disputes arising under this Agreement in an expedient manner by mutual cooperation and without resort to arbitration or litigation. To accomplish this objective, and except for any Committee disputes which shall be resolved in accordance with the procedures set forth in Section 3.6 above, the Parties agree to follow the procedures set forth in this Article 14 to resolve any controversy or claim arising out of, relating to or in connection with any provision of this Agreement, including any subsequent amendments, or the validity, enforceability, construction, performance or breach hereof (and including the applicability of this Section 14.1 to any such controversy or claim), if and when a dispute arises under this Agreement.

14.2 **Initial Escalation**. Except for any Committee disputes which shall be resolved in accordance with the procedures set forth in Section 3.6 above and except as permitted under Section 14.4 and Section 14.5, with respect to all other disputes arising between the Parties under this Agreement, including with respect to the interpretation, performance under, enforcement, termination or invalidity of this Agreement, if the Parties are unable to resolve such dispute within fifteen (15) days after such dispute is first identified by either Avanir or OptiNose in writing to the other, either Party shall have the right to refer such dispute to the [***] of Avanir and OptiNose for attempted resolution by written notice to the other Party referencing the particular dispute and this Section 14.2. In such case, the [***] (or an authorized representative designated by a Party's [***]) shall have good faith negotiations within [***] after such notice is received, including, if requested by either Avanir or OptiNose, at least one (1) in person meeting of the [***] (or their respective authorized representatives) within [***] after such notice is received. If the [***] (or their respective authorized representatives) should resolve such dispute, a memorandum setting forth their agreement will be prepared and signed by both Avanir and OptiNose if requested by either Party. In all events, the Parties shall cooperate in an effort to limit the issues for consideration in such manner as narrowly as reasonably practicable in order to resolve the dispute.

14.3 **Binding Arbitration**. If the [***] (or their respective authorized representatives) are not able to resolve such dispute referred to them under Section 14.2 pertaining to the interpretation, performance under, enforcement, termination or invalidity of this Agreement, within such [***] period, such dispute shall be resolved through final, binding and non-appealable arbitration, which arbitration may be initiated by either Avanir or OptiNose by written notice to the other Party referencing the particular dispute and this Section 14.3 at any time after the conclusion of such [***] period, on the following basis:

(a) The place of arbitration shall be Orange County, CA, U.S.A., if such arbitration is initiated by OptiNose and Philadelphia, PA, U.S.A., if such arbitration is initiated by Avanir. All arbitration proceedings and communications shall be in English.

(b) The arbitration shall be conducted by the Judicial Arbitration and Mediation Services, Inc. (or any successor entity thereto) ("JAMS") under its rules of arbitration then in effect ("Rules") and, to the extent not inconsistent with the Rules, the Federal Arbitration Act, in each case, except as modified in this Agreement.

(c) The arbitration shall be conducted by a single arbitrator who is mutually agreed to by the Parties and is (i) significantly experienced with Delaware law; and (ii) has senior management and or legal/judicial experience. If the Parties are unable to agree upon the selection of an arbitrator within [***], then the arbitrator shall be selected in accordance with the Rules; provided however, that no potential arbitrator shall be appointed unless he or she has agreed in writing to abide and be bound by the provisions in this Article 14. The arbitrator shall engage

any independent experts with experience in the subject matter of the dispute as reasonably necessary to advise the arbitrator.

(d) Time is of the essence in the initiation and completion of the arbitration, and the Parties and the arbitrator shall use all reasonable efforts to complete any such arbitration (including receiving the final award from such arbitrator) within [***] from the issuance of notice of a referral of any such dispute to arbitration. The arbitrator shall determine what discovery will be permitted, consistent with the goal of limiting the cost and time which the Parties must expend for discovery; provided that the arbitrator shall permit such discovery as he or she deems necessary to permit an equitable resolution of the dispute.

(e) Unless clearly erroneous or arbitrary and capricious, the Parties agree that the decision of the arbitrator shall be the sole, exclusive and binding remedy between them regarding the dispute presented to the arbitrator. Notwithstanding Section 15.13 below, any decision of the arbitrator may be entered in a court of competent jurisdiction for judicial recognition of the decision and an order of enforcement, including, for the avoidance of doubt, a court of competent jurisdiction located outside the United States.

(f) Disputes or claims subject to arbitration pursuant to this Section 14.3 include disputes or claims regarding the applicability of this Section 14.3 or the validity of this Agreement (but excluding disputes or claims under Section 14.3(h) or Section 14.4).

(g) The arbitrator's decision shall include the Parties' relative responsibilities with respect to the expenses of the arbitration, including each Party's responsibility regarding the cost of the arbitration filing and hearing fees, the cost of any independent expert retained by the arbitrator, and the cost of the arbitrator and administrative fees of JAMS. Except as specifically provided in the foregoing sentence, each Party shall bear its own costs and attorneys' and witnesses' fees and associated costs and expenses.

(h) Pending the selection of the arbitrator or pending the arbitrator's determination of the merits of any dispute, either Party may seek appropriate interim or provisional relief from any court of competent jurisdiction, as provided in Section 15.13 below, as necessary to protect the rights or property of that Party.

(i) The arbitration proceedings and the decision of the arbitrator shall not be made public without the joint consent of the Parties and each Party shall maintain the confidentiality of such proceedings and decision unless the Parties otherwise agrees in writing; provided that either Party may make such disclosures as are permitted for Confidential Information of the other Party under Article 12 above.

(j) In no event shall an arbitration be initiated after the date when commencement of a legal or equitable proceeding based on the dispute, controversy or claim would be barred by the applicable statute of limitations; provided that such limitation shall be tolled as of the date a Party notifies the other Party of such dispute, controversy or claim pursuant to this Article 14.

14.4 **Patent and Trademark Dispute Resolution**. Any dispute, controversy or claim relating to the scope, validity, enforceability or Infringement of any Patent covering the manufacture, use, sale, import or other exploitation of the Product, or any trademark rights relating to the Product, shall be submitted to a court of competent jurisdiction as provided in Section 15.13.

ARTICLE XV
MISCELLANEOUS

15.1 **Entire Agreement; Amendment**. This Agreement, including the Exhibits hereto, which are incorporated by reference herein, sets forth the complete, final and exclusive agreement and all the covenants, promises, agreements, warranties, representations, conditions and understandings between the Parties hereto with respect to the subject matter hereof and supersedes, as of the Effective Date, all prior agreements and understandings between the Parties with respect to the subject matter hereof, including the Confidentiality Agreement. The foregoing shall not be interpreted as a waiver of any remedies available to either Party as a result of any breach,

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prior to the Effective Date, by the other Party of its obligations pursuant to the Confidentiality Agreement. There are no covenants, promises, agreements, warranties, representations, conditions or understandings, either oral or written, between the Parties other than as are set forth in this Agreement. No subsequent alteration, amendment, change or addition to this Agreement shall be binding upon the Parties unless reduced to writing and signed by an authorized officer of each Party.

15.2 **Force Majeure**. A Party shall be excused from the performance of its obligations under this Agreement to the extent that such performance is prevented by force majeure and the nonperforming Party promptly provides notice of the prevention to the other Party referencing this Section 15.2. Such excuse shall be continued so long as the condition constituting force majeure continues and the nonperforming Party takes reasonable efforts to remove the condition. For purposes of this Agreement, force majeure shall include conditions beyond the control of the affected Party, including an act of God, war, civil commotion, terrorist act, labor strike or lock-out, epidemic, failure or default of public utilities or common carriers, destruction of production facilities or materials by fire, earthquake, storm or like catastrophe, and failure of plant or machinery (provided that such failure could not have been prevented by the exercise of skill, diligence, and prudence that would be reasonably and ordinarily expected from a skilled and experienced person engaged in the same type of undertaking under the same or similar circumstances).

15.3 **Notices**. Any notice required or permitted to be given under this Agreement shall be in English in writing, shall specifically refer to this Agreement, and shall be addressed to the appropriate Party at the address specified below or such other address as may be specified by such Party in writing in accordance with this Section 15.3, and shall be deemed to have been given for all purposes: (a) when received, if hand-delivered or sent by a reputable international courier service; or (b) upon receipt as evidenced by the date on the return receipt, if mailed by first class certified or registered airmail, postage prepaid, return receipt requested; or (c) when transmitted by facsimile (complete transmission confirmed) or as a PDF attachment to an email (with response email confirming receipt) and followed with a copy by first class certified or registered airmail, postage prepaid, return receipt requested.

If to OptiNose or OptiNose, Inc.:

OptiNose AS
Pb 288 Roa, 0702
Oslo
NORWAY
Attn: Chief Executive Office
Email: [***]

With a copy to:

OptiNose, Inc.
1010 Stony Hill Road, Suite 375
Yardley, Pennsylvania 19067
U.S.A.
Attn: Chief Executive Officer
Email: [***]

With a copy (which shall not constitute notice) to:

Hogan Lovells US LLP
100 International Drive, Suite 2000

Baltimore, Maryland 21202
U.S.A.
Attn: Asher M. Rubin
Email: [***]

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If to Avanir:

Avanir Pharmaceuticals, Inc.
20 Enterprise, Suite 200
Aliso Viejo, CA 92656
U.S.A.
Attn: Vice President Legal Affairs
Phone: +1 (949) 389-6700
Fax: +1 (949) 389-6701
Email: [***]

and

Avanir Pharmaceuticals, Inc.
20 Enterprise, Suite 200
Aliso Viejo, CA 92656
U.S.A.
Attn: Senior Vice President and Chief Business Officer
Phone: +1 (949) 389-6700
Fax: +1 (949) 389-6701
Email: [***]

With a copy (which shall not constitute notice) to:

Wilson Sonsini Goodrich & Rosati PC
650 Page Mill Road
Palo Alto, California 94304-1050
U.S.A.
Attn: Kenneth A. Clark, Esq.
Miranda Biven, Esq.
Email: [***]

15.4 **No Strict Construction; Headings**. This Agreement has been prepared jointly and shall not be strictly construed against either Party. Ambiguities, if any, in this Agreement shall not be construed against any Party, irrespective of which Party may be deemed to have authored the ambiguous provision. The headings of each Article and Section in this Agreement have been inserted for convenience of reference only and are not intended to limit or expand on the meaning of the language contained in the particular Article or Section.

15.5 **Assignment**. Except as permitted under Section 15.6, neither Party may assign or transfer this Agreement or any rights or obligations hereunder without the prior written consent of the other Party, except that (a) a Party may make such an assignment or transfer of this Agreement in its entirety, without the other Party's consent, to any Affiliate; (b) Avanir may make such assignment or transfer of this Agreement in its entirety, without OptiNose's consent, to a successor to substantially all of the assets or business of such Party to which this Agreement relates, whether in a merger, sale of stock, sale of assets or any other transaction; and (c) OptiNose may make such assignment or transfer of this Agreement in its entirety, without Avanir's consent, to a successor to substantially all of the assets or business of OptiNose AS and OptiNose, Inc., whether in a merger, sale of stock, sale of assets or any other transaction . Any such assignment or transfer to an Affiliate or a permitted successor or assignee of rights and/or obligations hereunder shall be subject to such Affiliate or permitted successor or assignee and the assigning Party(ies) providing written notice to the other Party, and the expressly assuming performance by the permitted successor or assignee of such rights and/or obligations. Any permitted assignment or transfer shall be binding on the permitted successors of the assigning Party. OptiNose shall not assign any OptiNose IP to any entity other than an entity to whom OptiNose also assigns this Agreement in its entirety in accordance with the terms of

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this Section 15.5. Any assignment, transfer or attempted assignment or transfer by either Party in violation of the terms of this Section 15.5 shall be null, void and of no legal effect.

15.6 **Performance by Affiliates**. Each Party may discharge any obligations and exercise any rights hereunder through any of its Affiliates without the other's consent, provided that each Party hereby guarantees the performance by its Affiliates of such Party's obligations under this Agreement, and shall cause its Affiliates to comply with the provisions of this Agreement in connection with such performance, and in the case of OptiNose, upon Avanir's reasonable request, OptiNose shall notify Avanir of the identity of the Affiliate and the activities or obligations hereunder that will be, or are being,

performed by such Affiliate. Any breach by a Party's Affiliate of any of such Party's obligations under this Agreement shall be deemed a breach by such Party, and the other Party may proceed directly against such Party without any obligation to first proceed against such Party's Affiliate.

15.7 **Further Actions**. Each Party agrees to execute, acknowledge and deliver such further instruments, and to do all such other acts, as may be reasonably necessary in order to carry out the express purposes and intent of this Agreement.

15.8 **Severability**. If any one or more of the provisions of this Agreement is held to be invalid, illegal, or unenforceable by any court of competent jurisdiction from which no appeal can be or is taken, the provisions shall be considered severed from this Agreement and shall not serve to invalidate any remaining provisions hereof. The Parties shall make a good faith effort to replace any invalid, illegal, or unenforceable provision with a valid, legal, and enforceable one such that the objectives contemplated by the Parties when entering this Agreement may be realized.

15.9 **No Waiver**. Any delay in enforcing a Party's rights under this Agreement or any waiver as to a particular default or other matter shall not constitute a waiver of such Party's rights to the future enforcement of its rights under this Agreement, except with respect to an express written and signed waiver referencing this Agreement and the particular matter and particular period of time for which the waiver is given.

15.10 **Independent Contractors**. Avanir (on the one hand) and OptiNose (on the other hand) shall act solely as independent contractors, and nothing in this Agreement shall be construed to give Avanir (on the one hand) or OptiNose (on the other hand)the power or authority to act for, bind, or commit the other Party in any way. Nothing herein shall be construed to create the relationship of partners, principal and agent, or joint-venture partners between the Parties.

15.11 **No Third Party Beneficiaries**. None of the provisions of this Agreement shall be for the benefit of, or enforceable by, any Third Party, including any creditor of either Party. No Third Party shall obtain any right under any provision of this Agreement or shall by reason of any such provision make any claim in respect of any debt, liability or obligation (or otherwise) against either Party.

15.12 **English Language; Governing Law**. This Agreement was prepared in the English language, which language shall govern the interpretation of, and any dispute regarding, the terms of this Agreement. This Agreement and all disputes arising out of or related to this Agreement or any breach hereof shall be governed by and construed under the Laws of the State of Delaware, U.S.A., without giving effect to any choice of law principles that would require the application of the Laws of a different jurisdiction, except for disputes governed by Section 14.4 where federal law governing intellectual property rights controls. The U.N. Convention on the Sale of Goods shall not apply to this Agreement.

15.13 **Exclusive Jurisdiction**. Subject to Article 14 above, each of the Parties (i) irrevocably consents to the exclusive jurisdiction and venue in the Delaware Court of Chancery within the State of Delaware (or, if the Delaware Court of Chancery declines to accept jurisdiction over a particular matter, any court of the United States located in the State of Delaware, or, if any such court of the United States located in the State of Delaware declines to accept jurisdiction over a particular matter, any state court located in the State of Delaware) and (ii) agrees that process shall be served upon such Party in the manner set forth in Section 15.3 above, and that service in such manner shall constitute valid and sufficient service of process. Each Party waives and covenants not to assert or

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plead any objection that such Party might otherwise have to such jurisdiction, venue, and process. Subject to Article 14 above, each Party hereby agrees not to commence any legal proceedings relating to or arising out of this Agreement or the transactions contemplated hereby in any jurisdiction or courts other than as provided herein.

15.14 **Counterparts; PDF or Facsimile Signatures**. This Agreement may be executed in one (1) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. This Agreement may be executed through electronic (including .pdf) or facsimile transmitted counterparts.

[Signatures on Following Page]

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

IN WITNESS WHEREOF, the Parties have executed this Agreement in duplicate originals by their duly authorized officers as of the Effective Date.

AVANIR PHARMACEUTICALS, INC.		**OPTINOSE AS**	
By:	/s/ Keith A. Katkin	By:	/s/ Peter K. Miller
Name:	Keith A. Katkin	Name:	Peter K. Miller
Title:	President and Chief Executive Officer	Title:	CEO

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EXHIBIT 1.28

[***]

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EXHIBIT 1.29

[***]

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Exhibit 4.1

[***]

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Exhibit 4.3

[***]

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Exhibit 4.5(a)

[***]

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Exhibit 4.5(b)

[***]

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Exhibit 7.3(c)

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EXHIBIT 9.2

[***]

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Exhibit 10.2(k)

[***]

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Exhibit 10.3

[***]

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Exhibit 12.3

Avanir Pharmaceuticals and OptiNose Announce Development and Commercialization Agreement for Breath Powered Nasal Sumatriptan Product for the Treatment of Migraine

New Drug Application (NDA) Filing Expected by End of 2013

ALISO VIEJO, Calif. and YARDLEY, Pa.—June XX, 2013—Avanir Pharmaceuticals, Inc. (NASDAQ: AVNR) and OptiNose AS today announced that the companies have entered into an exclusive North American license agreement for the development and commercialization of OptiNose's novel, Breath Powered™ nasal delivery device containing sumatriptan powder (Avanir "AVP-XXX") to treat acute migraine headache.

Under the terms of the agreement, OptiNose received an upfront cash payment of $20 million and is eligible to receive certain shared development costs and up to an additional $90 million linked to the achievement of future clinical, regulatory and commercial milestones. In addition, Avanir will make tiered royalty payments based on net sales in North America.

"OptiNose has developed a unique device that we believe can significantly improve upon the current treatment options for migraine," said Greg Flesher, senior vice president of corporate development and chief business officer of Avanir Pharmaceuticals. "This easy to use device provides a rapid onset of action using 85% less drug than the standard of care to relieve headache pain associated with moderate to severe migraines."

"Avanir has a proven track record of successfully developing and commercializing neuroscience products," said Peter Miller, chief executive officer of OptiNose. "Our research has proven that OptiNose's novel Breath Powered device delivers medicine into the targeted, deep nasal regions better than traditional nasal sprays. So we believe this new delivery method offers significant benefits in many medical conditions with high unmet clinical needs, including migraine headache. We look forward to working with the Avanir team to bring an important new treatment to people who continue to suffer with migraines."

Under the terms of the agreement, Avanir will assume responsibility for commercialization, manufacturing and supply chain activities for AVP-XXX for migraine treatment. OptiNose will retain responsibility for the completion of ongoing clinical trials and additional research and development to support a New Drug Application (NDA) with the U.S. Food and Drug Administration (FDA).

In the United States, approximately 13 million prescriptions are written annually for triptans. Sumatriptan has a market share of nearly 50% of this class of medications, making it one of the most commonly prescribed migraine drugs.* If approved, the OptiNose Breath

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Powered sumatriptan product would be the first and only fast-acting, dry-powder nasal delivery form of sumatriptan.

About OptiNose Breath Powered Delivery Technology

OptiNose's Breath Powered delivery (BPD) technology is unique in that it uses the natural function of a user's breath to propel medications beyond the nasal valve into the deep, targeted areas of the nasal cavity more effectively, efficiently and consistently than current treatment approaches. A user exhales into the device, creating a naturally balanced closure of the soft palate and sealing off the nasal cavity completely. The exhaled breath carries medication from the device into one side of the nose through a sealing nosepiece. Narrow nasal passages are gently expanded and medication is transported well beyond the nasal valve to targeted sites. After delivering medication to the targeted sites, air painlessly flows around to the opposite side of the nasal cavity and exits through the other side of the nose rather than into the throat or lungs. For more information about Breath Powered delivery technology and its capabilities, please click on the link below.

To view the multimedia content associated with this release, please click: http://www.multivu.com/players/English/57713-optinose-innovative-breath-powered-nasal-delivery-technology-delivers-drugs-to-treat-variety-of-medical-conditions/

About AVP-XXX

AVP-XXX is an investigational drug-device combination product consisting of low-dose sumatriptan powder delivered intranasally utilizing OptiNose's novel breath powered nasal delivery technology.

About Avanir Pharmaceuticals, Inc.

Avanir Pharmaceuticals, Inc. is a biopharmaceutical company focused on bringing innovative medicines to patients with central nervous system disorders of high unmet medical need. As part of our commitment, we have extensively invested in our pipeline and are dedicated to advancing medicines that can substantially improve the lives of patients and their loved ones. For more information about Avanir, please visit www.avanir.com.

About OptiNose

OptiNose is a drug delivery company developing a breakthrough Breath Powered nasal technology set to transform the static nasal drug delivery market. OptiNose devices are designed to reliably deliver nasal medication to target regions of the nasal cavity, including the sinus and olfactory regions, while preventing lung deposition. The simple devices are intended to unlock the potential for significant new benefits, including better local activity, better systemic bioavailability and pharmacodynamics and for "nose-to-brain" delivery for treating neurologic and psychiatric disorders.

OptiNose has created single and multi-use nasal devices for delivering both liquid and powder formulations. The strongly patent-protected technology has been successfully tested in a

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number of clinical trials evaluating the advantages of the technology compared to traditional nasal sprays. OptiNose is actively developing internal products using the new technology, which is also available to license for delivery of proprietary medicines. Investors in OptiNose include Avista Capital Partners in New York, WFD Ventures LLC located in New York and Entrepreneurs Fund LP based in Jersey, Channel Islands. For more information please visit www.optinose.com.

AVANIR® is a trademark or registered trademark of Avanir Pharmaceuticals, Inc. in the United States and other countries. All other trademarks are the property of their respective owners.

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*IMS NPA Month/Year

Forward Looking Statements

Except for the historical information contained herein, the matters set forth in this press release, including statements regarding Avanir's plans, potential opportunities, financial or other expectations, projections, goals objectives, milestones, strategies, market growth, timelines, legal matters, product pipeline, clinical studies, product development and the potential benefits of its commercialized products and products under development are forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially, including the risks and uncertainties associated with Avanir's operating performance and financial position, the market demand for and acceptance of Avanir's products domestically and internationally, research, development and commercialization of new products domestically and internationally, obtaining additional indications, obtaining and maintaining regulatory approvals domestically and internationally, and other risks detailed from time to time in the Company's most recent Annual Report on Form 10-K and other documents subsequently filed with or furnished to the Securities and Exchange Commission. These forward-looking statements are based on current information that

may change and you are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this press release. All forward-looking statements are qualified in their entirety by this cautionary statement, and the Company undertakes no obligation to revise or update any forward-looking statement to reflect events or circumstances after the issuance of this press release.

Avanir Investor & Media Contact
Ian Clements, PhD
ir@avanir.com
+1 (949) 389-6700

OptiNose Media Contact
David Barton
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+1 (212) 885-0432

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[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Exhibit 10.12

April 24th, 2014

VIA FEDERAL EXPRESS

OptiNose US, Inc.
1010 Stony Hill Road, Suite 375
Yardley, PA 19067
USA

Attention: Chief Executive Officer

Re: **First Amendment of License Agreement between OptiNose US, Inc. ("OptiNose") and Avanir Pharmaceuticals, Inc. ("Avanir") dated July 1, 2013 ("Agreement")**

Dear Peter Miller:

This letter confirms our understanding and agreement with respect to the assignment by OptiNose to Avanir of IND No. 110090. Unless otherwise defined in this letter, all initially capitalized terms used in this letter shall have the meanings given to such terms in the Agreement.

1. Avanir and OptiNose agree that Section 5.2 of the Agreement is hereby deleted in its entirety and replaced with the following:

"On April 30, 2014, OptiNose shall assign and cause to be assigned to Avanir IND No. 110090 ("**Existing IND**") and all other Regulatory Material relating to the Product in the Licensed Territory. Prior to the assignment and transfer of such Existing IND and other Regulatory Materials, OptiNose: (a) shall maintain (and/or cause to be maintained) such Existing IND and other Regulatory Materials; and (b) in any event, shall take reasonable actions to make available to Avanir and/or its designee the benefits of such Existing IND and other Regulatory Materials in the Licensed Territory, to the extent required by Avanir in connection with its activities under this Agreement. OptiNose hereby grants Avanir and its designees a right of reference with respect to the Existing IND (including any supplements and amendments thereto) and Regulatory Materials submitted in connection therewith for the purpose of preparing, filing, obtaining or maintaining Regulatory Approval for the Product in the Licensed Territory and OptiNose shall execute and, upon Avanir's request, submit to the FDA, any necessary or appropriate notice or permission to confirm, effect or perfect such right of reference, including the letter to the FDA set forth in Exhibit 5.2. The Out-Of-Pocket Expenses incurred by OptiNose in performing its obligations under this Section 5.2 shall be shared by the Parties to the extent and as provided in Section 4.5 above."

2. Avanir and OptiNose agree that Attachment A to this letter is hereby appended to the Agreement as Exhibit 5.2.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

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3. In addition, Avanir and OptiNose agree that:

a. notwithstanding Section 5.4 of the Agreement, OptiNose shall be responsible for liaising with and managing all interactions with the FDA relating to the Existing IND prior to the assignment of such Existing IND to Avanir in accordance with Section 5.2, [***]. Accordingly, OptiNose and Avanir agree that the terms of Section 5.4(a) and of Section 5.4(c) shall apply *mutatis mutandis* to Avanir's participation in OptiNose's interactions with the FDA relating to the Existing IND prior to the assignment of such Existing IND to Avanir in accordance with Section 5.2, except that each reference in Section 5.4(a) of the Agreement to the "Device" shall be deemed to be replaced with the word -Product."

b. Out of Pocket Expenses incurred by Optinose in performing its obligations under this letter shall be regarded as Joint Development Costs and be subject to the cost sharing provisions of the Agreement.

This letter is intended to comply and, upon counter-signature by OptiNose, will be deemed to comply with the requirements of the last sentence of Section 15.1 of the Agreement.

This letter was prepared in the English language, which language shall govern the interpretation of, and any dispute regarding, the terms of this letter. This letter and all disputes arising out of or related to this letter shall be governed by and construed under the Laws of the State of Delaware, U.S.A., without giving effect to any choice of law principles that would require the application of the Laws of a different jurisdiction. All disputes arising out of or related to this letter shall be resolved in accordance with Article 14 of the Agreement, as if the provisions of Article 14 were fully incorporated herein.

Except as specifically amended by this letter, no provision of the Agreement shall be affected hereby and all provisions of the Agreement shall remain in full force and effect. The Agreement, as specifically amended by this letter, is hereby confirmed and approved by each of OptiNose and Avanir.

Please confirm OptiNose AS's and OptiNose, Inc.'s agreement with, and acceptance of, the foregoing by arranging for an authorized representative of each of OptiNose AS and OptiNose, Inc. to sign this letter in the space indicated below and return an original copy of the letter countersigned by OptiNose AS and OptiNose, Inc. to me at the address for Avanir specified in Section 15.3 of the Agreement.

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Sincerely,

/s/ Gregory J. Flesher
Avanir Pharmaceuticals, Inc.

Name: Gregory J. Flesher

Title: SVP, Chief Business Officer

Date: April 24, 2014

AGREED AND ACCEPT:

OptiNose US, Inc.

/s/ Peter Miller

Name: Peter Miller

Title: Chief Executive Officer

Date: April 25, 2014

ACKNOWLEDGED AND AGREED:

OptiNose AS

/s/ Peter Miller

Name: Peter Miller

Title: Chief Executive Officer

Date: April 25, 2014

cc: Asher M. Rubin, Hogan Lovells US LLP

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ATTACHMENT A

RIGHT OF REFERENCE LETTER

Lana Chen, RPh
Project Manager
Food and Drug Administration
Silver Spring, MD 20993

Re: Grant of right of reference to IND No. 110090

Dear Lana:

By way of this letter, OptiNose US, Inc. ("**OptiNose**"), having an address at 1010 Stony Hill Road, Suite 375, Yardley, PA 19067,USA, is providing the FDA with notice that it has granted Avanir Pharmaceuticals, Inc. ("**Avanir**"), having an address at 30 Enterprise, Suite 400, Aliso Viejo, CA 92656, a right of reference with respect to OptiNose's IND No. 110090 (and any supplements and amendments thereto) and correspondence and/or filings submitted in connection therewith (the, "**OptiNose IND**"). Accordingly, OptiNose hereby authorizes the FDA to reference the OptiNose IND when reviewing Avanir's filings with the FDA for the following products, to the extent Avanir's filings for such products reference the OptiNose IND: products or product candidates consisting of a formulation that contains as an active ingredient a compound within the class of compounds known as triptans, including any salt, polymorphic or amorphous form of such a compound, that is delivered in a nasal delivery device.

Sincerely,

/s/ Peter Miller

Date: April 25, 2014

Peter Miller
CEO
OptiNose

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Exhibit 10.13

AMENDMENT TO LICENSE AGREEMENT

This **AMENDMENT TO LICENSE AGREEMENT** (this "***Amendment"***) is entered into on August 6, 2015 by and between OPTINOSE AS, a Norwegian corporation, company registration number 982483131 ("***OptiNose***"), with its principal place of business at Tore Hals Mejdells vei 7, 0751 Oslo, Norway, and its postal address at Pb 288 Roa, 0702 Oslo, Norway, and AVANIR PHARMACEUTICALS, INC., a Delaware corporation ("***Avanir***"), with offices at 30 Enterprise, Suite 400, Aliso Viejo, CA 92656, U.S.A. OptiNose and Avanir are sometimes referred to herein as a "***Party***" and collectively as the "***Parties.***"

RECITALS

WHEREAS, the Parties entered into a certain License Agreement dated July 1, 2013 (the "***Agreement***"); and

WHEREAS, the Parties desire to amend the Agreement as set forth herein.

AMENDMENT

NOW, THEREFORE, in consideration of the foregoing, and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Parties, intending to be legally bound, agree as follows:

1. Section 8.2(a) of the Agreement is hereby amended and restated in its entirety as follows:

"(a) **Development Milestone Payments**. Avanir shall make the following one-time milestone payments to OptiNose based on the achievement by Avanir, its Affiliate or sublicensee (or with respect to the Successful Completion of the Head to Head Trial, the achievement by OptiNose or its Affiliates) of each of the milestone events set forth below by a Product covered by a Valid Claim (each, a "**Development Milestone**") and in accordance with Section 8.2(c) below (except as expressly provided in the table below with respect to the first Development Milestone). For clarity, each milestone payment by Avanir to OptiNose under this Section 8.2(a) shall be payable only once, regardless of the number of times achieved, and in no event shall the aggregate amount to be paid by Avanir under this Section 8.2(a) exceed Fifty Million Dollars ($50,000,000).

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Milestone No.	Milestone Event	Milestone Payment
1	Successful Completion of the Head to Head Trial	$10,000,000, payable as follows: (a) $2,500,000, following the achievement of such Development Milestone event; and (b) $7,500,000, following receipt of the first Regulatory Approval for such a Product in the United States; provided that, the foregoing payments (i.e., a total payment of $10,000,000) shall be made at the same time if Successful Completion of the Head to Head Trial is achieved following receipt of the first Regulatory Approval for a Product in the United States.
2	Receipt of the first Regulatory Approval for such a Product in the United States	$30,000,000
3	Receipt of the first Regulatory Approval for such a Product in the United States	$10,000,000

For the avoidance of doubt, the Parties acknowledge that the Successful Completion of the Head to Head trial has occurred as of the date of this Amendment, and Avanir has paid OptiNose $2,500,000 in accordance with the table above."

2. **Abatement of Certain Royalties**. Section 8.3(c) of the Agreement is hereby amended by adding the following sentences at the end of said Section:

"Notwithstanding anything to the contrary herein, no Royalty shall be due or payable under this Agreement with respect to Net Sales on one or more Products on the first [***] of cumulative Net Sales of all Products. The royalty abatement described in the foregoing sentence shall apply only once. For the avoidance of doubt, in the Contract Year in which [***] in cumulative Net Sales on any and all Products is achieved, the Royalty Rate tier(s) in Section 8.3(a) shall be determined based on total Annual Net Sales in that Contract Year (including any portion of Net Sales that is part of the [***] in cumulative Net Sales), but Royalties shall be due only on Net Sales in that Contract Year over [***] in Cumulative Net Sales.

3. **General Provisions**. To the extent that capitalized terms are used in this Amendment without being defined herein, the respective definitions set forth in the Agreement shall apply. This Amendment may be executed in multiple counterparts, each of which shall be

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deemed an original and all of which together shall constitute one and the same instrument. This Amendment shall form a part of the Agreement for all purposes, and each Party thereto and hereto shall be bound hereby. From and after the execution of this Amendment by the Parties hereto, any reference to the Agreement shall be deemed a reference to the Agreement as amended hereby. Except as set forth herein, the Agreement shall remain unchanged and in full force and effect in accordance with its terms. This Amendment shall be governed by and construed in accordance with the laws of and in the applicable courts located within the State of Delaware (as specified in the Agreement) without giving effect to any choice of law principles that would require the application of the Laws of a different jurisdiction.

IN WITNESS WHEREOF, the Parties have executed this Amendment as of the date set forth above.

AVANIR PHARMACEUTICALS, INC.		**OPTINOSE AS**	
By:	/s/ James R. Beitel	By:	/s/ Peter Miller
Name:	James R. Beitel	Name:	Peter Miler
Title:	VP, Corp. Development & Strategy	Title:	Chief Executive Officer

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SUPPLY AGREEMENT

THIS SUPPLY AGREEMENT (this "Agreement") is made this, July 1, 2017 (the "Effective Date"), by and between Hovione Inter Ltd, Bahnhofstrasse 21, CH-6000 Lucerne 7, Switzerland ("Hovione"), and OptiNose US Inc., 1020 Stony Hill Road, Ste 300 Yardley, PA 19067, USA ("OptiNose US") — including its Affiliates, OptiNose AS ("OptiNose Norway") and OptiNose UK Ltd. ("OptiNose UK", and collectively, "OptiNose"). Hovione and OptiNose are each sometimes referred to herein as a "Party" and together as the "Parties."

WHEREAS, OptiNose desires to acquire fluticasone propionate micronized (the "API") from Hovione in accordance with the requirements of this Agreement including the Specifications set forth in Exhibit A hereto, which OptiNose intends to incorporate into the finished drug/device combination exhaler product known as OPN-375 ("Finished Product") as described more particularly in various OptiNose documents including the pending New Drug Application applicable thereto, which Finished Product is to be produced at an external contract manufacturing organization ("CMO"); and

WHEREAS, Hovione is willing to supply such API for OptiNose's use under the terms and conditions set forth in this Agreement.

NOW THEREFORE, in consideration of the promises and the mutual covenants set forth herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree and covenant as follows:

1. Definitions.

1.1 "Active Pharmaceutical Ingredient" or "API" shall have the meaning given such term in the preamble hereof.

1.2 "Adverse Event" shall mean any undesirable experience in a patient associated with, related to or could reasonably affect the OptiNose application or approval or the manufacture of the API or Finished Product hereunder.

1.3 "Affiliate" shall mean any entity controlling, controlled by or under common control with either Party hereto. For purpose of this definition, "control" shall mean ownership of over fifty percent (50%) of the equity capital, the outstanding voting securities or other ownership interest of an entity, or the right to receive over fifty percent (50%) of the profits or earnings of an entity. In the case of non-stock organizations, the term "control" shall mean the power to control the distribution of profits.

1.4 "Applicable Law" shall mean the FD&C Act, and all other laws, regulations (including cGMP), rules and guidelines of any relevant Regulatory Agency (whether Federal, State, municipal or other, in the U.S., European Union, Japan, and any other country where the API is manufactured by or on behalf of Hovione) pertaining to the development, manufacture, packaging, labeling, storage, import, export, distribution, marketing, sale and/or intended use of the API or the Finished Product.

1.5 "Batch Record" shall mean a batch manufacturing record, prepared according to applicable cGMP guidelines, for every production batch of API.

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1.6 "Confidential Information" shall mean all the technical information, whether tangible or intangible, including (without limitation) any and all specification data, techniques, discoveries, inventions, processes, know-how, patents, patent applications, inventor certificates, trademarks, trade names, other intellectual property information, trade secrets, methods of production and other proprietary information, that either Party or its Affiliates have ownership rights to (as either owner, licensee or sub-licensee), or may hereafter obtain rights.

1.7 "Current Good Manufacturing Practices" or "cGMP" shall mean current Good Manufacturing Practice as set forth in the FD&C Act, as well as current good manufacturing practices applicable to the API, or the making thereof at Hovione's manufacturing facility, set forth by any applicable Regulatory Agency.

1.8 "Defect" with respect to the API shall mean failure of the API to comply with the Product Specifications and/or Applicable Law.

1.9 "DMF" shall mean Drug Master File

1.10 "FDA" shall mean the United States Food and Drug Administration, and any successor thereto.

1.11 "FD&C Act" shall mean the United States Food, Drug and Cosmetic Act, as amended, and includes the rules and regulations promulgated thereunder.

1.12 "Finished Product" shall have the meaning given to such term in the recitals.

1.13 "Firm Forecast" shall have the meaning given to such term in Section 3.2 hereof.

1.14 "GDUFA" shall mean the Generic Drug User Fee Act, as implemented by the US FDA

1.15 "Initial Term" shall have the meaning assigned to such term in Section 10.1.

1.16 "Product Specifications" shall have the meaning given to such term in Section 2.1(b) hereof.

1.17 "Quality Agreement" shall mean that certain Quality Assurance Agreement, dated of even date herewith, by and between OptiNose and Hovione, which sets forth (a) the roles and responsibilities of the Parties with respect to the quality assurance for the API and (b) how the Parties' quality operations shall interact with each other in connection with the same, and which, subject to the terms and conditions of the Entire Agreement clause in Section 13.3 hereof is incorporated by reference herein as if fully set forth at length.

1.18 "Regulatory Agency" shall mean any applicable supra-national, federal, national, regional, state, provincial or local regulatory agencies, departments, bureaus, commissions, councils or other government entities regulating or otherwise exercising authority with respect to the API or the Finished Product, including, without limitation, the FDA in the US and the Applicable Regulatory agencies in the EU (including, but not limited to, EMA), Japan (including, but not limited to, PDMA) and any other country where the Finished Product is manufactured or sold,

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and/or where API is manufactured, delivered, distributed, or sold by, or on behalf of Hovione and/or or on behalf of OptiNose hereunder.

1.19 "Serious Adverse Event" shall mean a product complaint of a serious or life threatening nature, the need for, results of or information relating to a recall, withdrawal, warning, inspection, hold, or other regulatory action or which is related to or could reasonably affect the OptiNose application or approval or the manufacture of the API or Finished Product hereunder.

2. Manufacture and Sale.

2.1. Supply. During the term of this Agreement and subject to the terms and conditions set forth herein, OptiNose shall purchase [***] API [***] from Hovione, and Hovione shall manufacture and supply API to OptiNose (or a third party designated by OptiNose) in such quantities as from time to time may be ordered by OptiNose in accordance with the applicable forecast and purchase orders provided by OptiNose pursuant to Section 3.2. During the term of this Agreement, Hovione shall [***].

(a) If OptiNose provides written notice [***].

(b) Product Specifications. The specifications of the API as set out in Hovione's US DMF are set forth in Exhibit A to this Agreement (the "Product Specifications"); as such Exhibit may be amended in accordance with the terms of the Quality Agreement and Section 4.1 hereof.

2.2. Costs. Hovione shall be responsible for [***] related to the submission and maintenance of a US DMF, Japanese DMF, or European CEP for the API, which Hovione represents are already prepared and on file. Any other foreign DMFs or CEPs, etc. applicable to regulatory authorities outside of the foregoing territories may be chargeable by Hovione to OptiNose (pro rata with any other entities to which Hovione does or may in the future supply API pursuant to such DMF or CEP, etc.) to the extent that Hovione has not previously prepared and filed such a DMF or CEP, etc. and must undertake [***] to complete same for such territory in order to comply with the requirements of this Agreement. Any additional technical work, documents, data or materials requested by Optinose beyond what is already contemplated in an existing DMF or CEP, etc. may also be chargeable by Hovione. Both parties agree to the regular and timely payment of their respective GDUFA fees to the US FDA.

3. Price, Orders and Terms of Payment.

3.1. Pricing. The transfer price for the API shall be as set forth on Exhibit B hereto, as the same may be amended from time to time by mutual agreement of the Parties subject to the limits in Exhibit B. All sums shall be expressed in and payable in UNITED STATES DOLLARS.

3.2. Forecasting. For each calendar year during the term of this Agreement, OptiNose shall submit a [***] ([***]) month rolling forecast updated on a quarterly basis, broken down on a quarterly basis covering OptiNose's anticipated requirements of API, each such forecast to be provided to Hovione at least [***] ([***]) days prior to the start of the relevant [***] ([***]) month period, except in the case of the first forecast which shall be delivered at a time mutually agreed upon by the Parties. The first [***] ([***]) months of each rolling forecast shall be a binding order (the "Firm Forecast"), and the last [***] ([***]) months will be for information purposes only and non-binding. For the [***] ([***]) month period of the Firm Forecast, OptiNose shall provide the forecasted volume by month, however OptiNose may adjust the monthly volumes taken provided that at least the total volume forecast is purchased over this [***] ([***]) month period. OptiNose shall place all purchase orders with Hovione at least [***] ([***])[***] in advance of required delivery

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to OptiNose, except in the situation where the requirement exceeds [***] in which case purchase orders shall be placed at least [***] ([***]) days in advance of the required delivery to Optinose. Within [***] ([***]) days of receipt of a purchase order, Hovione shall acknowledge receipt of the purchase order and indicate the agreed delivery date, which delivery date shall be no less than [***] ([***]) days and no more than [***] ([***]) days after the date of the purchase order unless agreed upon by the parties. If the purchase order exceeds the Firm Forecast amount between [***] % and [***] % ([***]), Hovione shall supply such excess under this agreement. If the purchase order exceeds the Firm Forecasted amount by more than [***]% ([***]), Hovione shall use [***] to fill such order [***].

3.3. Delivery Terms. Each purchase order shall specify: (i) an identification of the API ordered; (ii) quantity requested; (iii) the requested delivery date; and (iv) shipping instructions and address. Hovione agrees to deliver API conforming to the Specifications and the requirements of this Agreement DDP (Incoterms 2000) to such U.S. or Canadian location as may be designated by OptiNose on the purchase order.

3.4. Late Delivery. If, for a reason attributable to Hovione, the ordered quantity of API is not delivered to the location on the purchase order by at least [***] ([***]) working days following the agreed delivery date, as defined in Section 3.2, the transfer price for such late API shall be reduced by [***]

% each week until the API is delivered covering the period from the [***] ([***]) to [***] ([***]) week. For the avoidance of doubt, the maximum penalty for late delivery shall not be more than [***]% of the price of the relevant shipment; provided, that, failure to deliver by the [***] ([***]) week shall constitute a breach of this Agreement and, for purposes of clarity, any liability of Hovione under this Agreement resulting from such breach shall be, to the extent applicable, subject to the limitations set forth in Section 8.4, and any penalties paid under this Section 3.4 shall be deducted to Hovione's liability for late delivery.

3.5. Launch Provisions. The Parties recognize that the Commercial Launch of the Finished Product can only occur after the FDA has approved a New Drug Application ("NDA") for the Finished Product. The "Commercial Launch" of the Finished Product shall be the date on which OptiNose begins to distribute Finished Product to third party customers in the ordinary course of its business. Commercial Launch does not include transfers of free samples of Finished Product or transfers of Finished Product solely for development purposes, such as for use in experimental studies or clinical trials.

3.6. Payment Terms. Hovione shall invoice OptiNose upon delivery of the API. OptiNose shall pay all undisputed amounts to Hovione for conforming API within [***] ([***]) calendar days of the date of receipt of invoice of such API. Payments shall be made to Hovione by wire transfer to the following bank account:

[***]

In case of delays on payment of more than [***] ([***]) business days, OptiNose agrees to pay interest on the outstanding amount at a rate of [***]% per month.

3.7. Minimum Number of Batches. Hovione shall use [***] to minimize the number of different batches shipped to fulfill an OptiNose purchase order.

3.8. Scope of Agreement. In no event shall any terms or conditions included on any purchase order, invoice or acknowledgement thereof or any other document, whether paper, electronic or otherwise, relating thereto, apply to the relationship between the Parties under this Agreement; provided that the Parties may enter into a signed agreement that specifically references this Section 3.8 and the additional or different terms which shall apply to a particular

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purchase order hereunder. The Parties further agree that no course of dealing between the Parties shall in any way modify, change or supersede the terms and conditions of this Agreement.

3.9. CMO. OptiNose may request CMO to interact directly with Hovione regarding API supply (including, but not limited to, forecasting as per 4.2, purchase order placing as per 4.2, payment as per 4.4). In such case, Hovione shall supply CMO under the same terms and conditions applicable to OptiNose and as specified in this Agreement. Independently of being OptiNose or CMO issuing the forecasting (4.2), placing purchase orders (4.2) and paying supplies (4.4), it is OptiNose's ultimate and sole responsibility to ensure CMO fulfills entirely OptiNose obligations according to this Agreement.

4. Manufacture and Delivery of API.

4.1. Manufacture. The API shall be manufactured by Hovione at its facilities in Loures, Portugal, or at such other location as Hovione may utilize, in accordance with all relevant cGMPs, the Product Specifications, and Applicable Laws, and pursuant to Hovione's Drug Master File ("DMF") or CEP, prepared by Hovione and filed with the FDA, PMDA, or EMA. Any changes will be made according to the terms of the Quality Agreement between the parties. Hovione shall provide sufficient notice of any such change to OptiNose to allow OptiNose to make any required notices to, and obtain any required approvals, from any Regulatory Agency with respect to such change, and any delay in approval of the change by OptiNose until any such notice is given or approval is obtained shall not be deemed unreasonable.

4.2. Right of Audit. OptiNose and its representatives shall have the right to audit Hovione for compliance with applicable regulatory requirements, including but not limited to cGMPs, at reasonable intervals and upon [***] days written notice. Such audits shall be scheduled at mutually agreeable times and be no more frequent than once every three years, except that audits may be conducted at any time, for cause, including if an event occurs that may affect the ability to supply the Product, such as regulatory warnings, product recalls, or significant product defects. When appropriate, OptiNose agrees to consider the use of Rx360 audit reports in the place of on-site audits.

4.3. Certificate of Analysis; Product Release. The quality control(s) and the release(s) of API (including documentation) shall be done by Hovione in accordance with the Quality Agreement. Hovione shall provide certificates of analysis ("COAs") to OptiNose for each batch of API delivered under this Agreement. Hovione shall make Batch Records and other documents pertaining to shipments made to OptiNose readily available to OptiNose on site. Any API that does not conform to the Product Specifications or requirements of the Agreement shall not be shipped to OptiNose. API shall have at least [***] of retest period remaining on the date of delivery. Hovione shall be solely responsible for releasing the API to the agreed API Product Specification in Exhibit A.

4.4. Cooperation. During the term of this Agreement, Hovione shall assist and cooperate in a timely manner with OptiNose in its preparation of any documents or other materials which may be required by the FDA and/or any other Regulatory Authority to validate, sell, and/or distribute the API to be supplied by Hovione under this Agreement for the Finished Product. Hovione shall file with the FDA (and with PDMA and EMA and other applicable regulatory authorities hereunder as may be agreed), and shall maintain at all times as current, a DMF (and/or CEP, etc. , as applicable) for the API with FDA (and such other applicable regulatory authorities) in accordance with all Applicable Laws, Product Specifications and or requirements of this Agreement. Hovione shall also provide OptiNose with a referral letter permitting OptiNose to use Hovione's DMF or CEP, etc., as applicable. Hovione shall provide OptiNose with advance notice of any updates and amendments to the DMF or CEP, etc. in accordance with Section 4.1.

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4.5. Required Changes. OptiNose shall deliver to Hovione written notice of any changes to the Product Specifications requested by OptiNose or required by the FDA, PMDA, or EMA, and Hovione shall use its [***] to timely make such conforming changes to the Product Specifications in accordance with Applicable Laws and the requirements of this Agreement. If any change to Product Specifications requested by OptiNose [***], then Hovione shall promptly so inform OptiNose in writing and the Parties shall negotiate, in good faith, an adjustment to the pricing paid by OptiNose for API under this Agreement.

(a) In the case of required changes by the FDA, PMDA or EMA, Hovione shall deliver to OptiNose a good faith and detailed estimate of the increase in Hovione's cost to manufacture the API as a result of the required change. If the parties cannot agree to the applicable price adjustment resulting from such required changed, OptiNose may require Hovione to make the required change to the Specifications and/or process while the Parties continue negotiations in good faith as to the costs associated with such change, which shall not delay Hovione's obligations to, as soon as reasonably practicable, implement such changes, in which case, OptiNose shall pay the price requested by Hovione for such API; provided further, that Hovione shall promptly refund any overpayment by OptiNose should the price later be contradicted by the third-party audit specified in Section 4.5(b). Additionally, if the required change impacts any API already ordered by a Firm Forecast pursuant to Section 3.2, OptiNose shall cover any increased costs that impact such already ordered API, while the parties thereafter discuss in good faith pursuant to this Section 4.5 whether such increase was confirmed or contradicted by the auditor.

(b) OptiNose shall reserve the right to a third-party audit of the increased cost contributions with auditors reasonably agreeable to both parties, who shall communicate simultaneously to both parties hereto if the estimate amount is confirmed or contradicted. If contradicted, Hovione agrees to make all applicable changes to API required by the FDA and supply same to OptiNose at the price stated by the auditor for the duration of the Term of the Agreement. If the increase is confirmed, but OptiNose does not agree to pay such increase in transfer price, or if the parties cannot otherwise agree on an equitable adjustment to the transfer price, then either party may terminate this Agreement upon [***] ([***]) months advance written notice to the other party. In such case, the Agreement shall continue in force at the price stated by the auditor for said [***] ([***]) month period in order to provide OptiNose with an opportunity, in its discretion, to arrange for transition to an alternate supplier of its choosing, [***]. During such period Hovione shall continue to supply OptiNose with API and OptiNose shall continue purchasing API from Hovione as per the FDA required changed Product Specification and OptiNose must take delivery of all products for which firm orders have been placed.

(c) In the case of required changes by either Party not requested by regulatory action, if the parties cannot agree on an equitable adjustment to the pricing the Agreement may be terminated provided [***] ([***]) months written notice. During such period Hovione shall continue to supply OptiNose with API and OptiNose shall continue purchasing API from Hovione as per the previously agreed Product Specification and OptiNose must take delivery of all product for which firm orders have been placed

(d) In the case where a disagreement between the parties to a price change pursuant to this Section 4.5 causes a delay in delivery by Hovione, such delay shall be excused; provided [***] the parties separately continue discussions regarding such increased costs.

4.6. Inspection of API. Within [***] ([***]) calendar days of the arrival of each lot of API at the facility designated by OptiNose, OptiNose shall inspect and test each lot of API at its own cost and expense. If, upon inspecting and testing the API, OptiNose determines that a lot of API does not conform to the Product Specifications, then OptiNose shall, within such [***] ([***]) day period, give Hovione written notice of such non-conformity (setting forth the details of such non-conformity)

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in the form of a written complaint, and unless Hovione, within [***] working days from the notice by OptiNose, objects to the non-conformity or provides a status report indicating the investigation is still ongoing, OptiNose shall return the non-conforming API to Hovione at [***]. Any API rejected by OptiNose may not be reshipped to OptiNose except if the API is reprocessed according to the DMF. If approved by OptiNose in writing, Hovione shall replace any non-conforming API within [***] ([***]) days of receiving the notice of non-conformity [***]. Disputes between the Parties as to whether all or any part of a shipment rejected by OptiNose materially conforms to the Product Specifications shall be resolved by a mutually acceptable third party testing laboratory located in the continental United States. [***] shall pay all the fees of the third party laboratory, unless the third party testing laboratory determines that the delivered API materially conforms to the Product Specifications, in which case [***] shall pay all the fees of such third party laboratory and also any additional costs that [***] incurred in providing replacement material. If a Defect in API could not have been ascertained by OptiNose upon reasonable and customary inspection and analysis of the API, then the [***] ([***]) day time period referred to herein to notify Hovione of the Defect shall not apply nor shall any inspection that may have been undertaken by OptiNose operate to limit or bar OptiNose's rights and remedies or Hovione's warranties or obligations regarding same. For the avoidance of doubt, OptiNose expressly reserves all rights and remedies available to it hereunder, at law or in equity in the event of any defect in any API.

4.7. FDA Delays. To the extent that the FDA and/or any other applicable regulatory authority acts inordinately slowly in approving any Finished Product, clearing paperwork or otherwise releasing Finished Product to OptiNose, where such delay is not due to any action or failure to act by Hovione, OptiNose and Hovione shall confer and cooperate with each other on the effect that such delay may have on any obligations arising under this Agreement.

4.8. Regulatory Communications. During the Term, Hovione shall notify OptiNose after receipt of any communication from any Regulatory Agency in accordance with the following timelines: (a) in the event of any communication that is related to or could reasonably be construed as implicating or involving a Serious Adverse Event, Hovione shall provide to OptiNose a copy of any report or other written communications received from any Regulatory Agency on the same day received where possible and in any event, no less than [***] from receipt; b) in the event of any communication that is related to or could reasonably be construed as implicating or involving an Adverse Event, or a product complaint related to the API or Finished Product, that are not reasonably deemed to be Serious Adverse Event, Hovione shall provide to OptiNose a copy of any report or other written communications received from any Regulatory Agency within [***] of receipt; and c) with respect to any other communications from Regulatory Authorities, Hovione shall provide to OptiNose a copy of any report or other written communications received from any Regulatory Agency within [***] after receipt thereof.

4.9. Liability. It is understood that Hovione has no control over the ultimate use of the API once it leaves Hovione's manufacturing facility. Hovione shall have no liability arising out of or in connection with the sale or use of the API or any product or material made from or incorporating the API,

except to the extent that the API was not manufactured in accordance with the Product Specifications, the DMF, cGMPs and Applicable Law or the liability otherwise arises from a breach of this Agreement by Hovione.

4.10. Recall. OptiNose shall be responsible for conducting any recall of Finished Product, and Hovione shall co-operate with [***] OptiNose in conducting any such recall to the extent it relates directly to the API. [***]. [***]. In the event of such recall or similar action, each Party shall use [***] to mitigate the costs associated therewith. In the case of a disagreement as to the existence or level of nonconforming API, then the matter shall be referred to an independent third party laboratory. The decision of the laboratory shall be final and binding on the Parties. For the

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avoidance of doubt, neither any dispute over responsibility nor the pending decision process by the laboratory shall operate to defer or delay the obligation of either party to cooperate or act in good faith to promptly address, strategize respecting, conduct or respond to any recall, withdrawal, warning, inspection, hold or other applicable regulatory action in accordance with the requirements of all Applicable Laws and standards of the industry. In the event responsibility for costs cannot be determined or agreed at the outset, the parties shall initially share such costs with OptiNose bearing [***] ([***] %) of such costs and Hovione bearing [***] ([***] %) percent of such costs, subject to any appropriate reimbursement following the decision of the independent third party laboratory.

4.11. Retention of Documentation. All documentation related to the manufacturing of the API shall be archived with Hovione after manufacturing in accordance with Hovione's document retention policies, which policies shall be consistent with the longest applicable retention period(s) required by Applicable Laws, including US FDA, PDMA, EMA or other applicable regulations.

4.12. Safety of API. Each Party shall immediately notify the other Party of any unusual health or environmental occurrence relating to API. Each Party shall advise the other Party immediately of any safety or toxicity problems of which it becomes aware regarding API.

5. Warranties.

5.1. Hovione's Warranties. Hovione represents and warrants to OptiNose that:

(a) It has full right and power to enter into this Agreement and perform its obligations hereunder in accordance with its terms;

(b) The API and all components and ingredients thereof shall be manufactured and delivered [***] with: (i) the Product Specifications; (ii) the terms of this Agreement; (iii) the methods processes and procedures, including the site manufacture, set forth in the DMF, together with all Applicable Law relating to the manufacture of the API; (iv) all Applicable Laws, including, but not limited to, the provisions of the FD&C Act, and cGMPs; and (v) quality control procedures and associated test methods for the manufacturing process as developed by Hovione and acceptance specifications and test methods for the API;

(c) the plant(s) for manufacture of the API is and shall be in compliance with all applicable cGMPs and that such plant(s) is and shall continue to be available for FDA inspection if and when the FDA so requests;

(d) Hovione shall not deviate from manufacturing API in accordance with Section 5.1(b) without the prior written consent of a duly authorized representative of OptiNose; and

(e) Good and valid title to the API will pass to OptiNose upon delivery by Hovione to OptiNose at the shipping address set forth in the applicable purchase order, free and clear of all third party liens, security interests, claims and/or encumbrances of any kind or nature.

5.2. OptiNose's Warranties. OptiNose represents and warrants to Hovione that:

(a) It has the full right and power to enter into this Agreement and perform its obligations hereunder in accordance with its terms; and

(b) That it will purchase the API in strict compliance with the terms of Section 2.1. and Section 3.

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5.3. Mutual Warranties. Each party represents and warrants to the other party that it holds all necessary and required permits and authorizations, including, but not limited to, those required by the FD&C Act, and shall undertake throughout the term of this Agreement to maintain the same in full force and effect, so as to enable the performance of the services hereunder. Each party further covenants that it shall use [***] to obtain all such other permits and authorizations as may [***] from time to time in either case to operate their respective facilities and/or businesses in order to manufacture, provide, distribute and/or sell API hereunder.

5.4. No Adulteration. For the purposes of Section 303(c) of the FD&C Act: (a) Hovione guarantees to OptiNose that all API shipped by or on behalf of Hovione hereunder will not, on the date or as of the time of delivery DDP to OptiNose's designated facility as required in Section 3.3, be adulterated or misbranded (i) within the meaning of the FD&C Act, or (ii) within the meaning of any applicable state law in which the definitions of "adulteration" and/or "misbranding" are substantially the same as those contained in the FD&C Act, the provisions of which are in effect at the time of such delivery, and will not be an article which may not, under the provisions of Section 404 or 505 of the FD&C Act, be introduced into interstate commerce; and (b) OptiNose guarantees to Hovione that all Finished Product shipped by or on behalf of OptiNose hereunder will not, on the date of shipment, be adulterated or misbranded (i) within the meaning of the FD&C Act, or (ii) within the meaning of any applicable state law in which the definitions of "adulteration" and/or "misbranding" are substantially the same as those contained in the FD&C Act, the provisions of which are in effect at the time of such shipment, and will not be an article which may not, under the provisions of Section 404 or 505 of the FD&C Act, be introduced into interstate commerce, except to the extent any such adulteration or misbranding is in violation of Section 5.4(a).

5.5. Debarment Certification. Each party will comply at all times with the provisions of Applicable Laws of the United States (and, as applicable, analogous such laws in any other territories where regulatory approval is sought) regarding debarment and will upon request certify in writing to the other parties that none of its employees nor any person providing services in connection with this Agreement and/or the API have been debarred under the provisions of such laws.

6. Confidentiality.

6.1. Confidentiality. Each party agrees to retain in confidence all Confidential Information disclosed to it pursuant to this Agreement, whether such disclosure occurred before or after the date hereof and to only use such Confidential Information in the performance of its obligations under this Agreement. Disclosed information shall not be deemed Confidential Information hereunder if: (a) it is now or later becomes publicly known, other than through the fault of the receiving party; (b) it is lawfully known without restriction to the receiving party at the time of disclosure as evidenced by written documentation; (c) it is rightfully obtained by the receiving party from a third party without restriction and without breach of this Agreement or any similar agreement; and/or (d) it is independently developed by the receiving party without access to the disclosing party's information, as evidenced by written documentation. If either Party is required under Applicable Law to disclose Confidential Information by any court or to any Regulatory Agency, the Party required to disclose the Confidential Information shall, prior to such disclosure, notify the other Party of such requirement and all particulars related to such requirement. The notified Party shall have the right, at its expense, to object to such disclosure and to seek confidential treatment of any Confidential Information to be so disclosed on such terms as it shall determine, and the other Party shall fully cooperate with the notified Party in this regard. The confidentiality of disclosed Confidential Information and the obligation of confidentiality hereunder shall survive any expiration or termination of this Agreement for the longer of a period of [***] or until it falls into a category referenced above in 6.1(a) through (d). The Parties specifically agree that all terms of this

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Agreement, all sales and API requirements and costs and all purchase orders shall be deemed to be confidential. Hovione acknowledges and agrees to indefinitely (a) maintain the Product Specifications in confidence and not disclose them directly or indirectly to any third party, and (b) not use them for itself or any third party in any manner other than in performing its obligations hereunder.

6.2. Separate Confidentiality Agreement. If the Parties entered into one or more separate confidentiality agreements or non-disclosure agreements (each, a "Confidentiality Agreement"), such Confidentiality Agreement(s) shall be and remain in full force and effect as provided therein. In the event of any conflict between the terms of this Agreement and the terms of any such Confidentiality Agreement, terms of this Agreement shall be deemed to control.

6.3 Public Announcements. During the term of this Agreement, no party hereto shall issue or release, directly or indirectly, any press release, marketing material or other communication to or for the media or the public that pertains to this Agreement, the API or the transactions contemplated hereby (collectively, a "Press Release") unless the content of such Press Release has been approved by the other party hereto, such approval not to be unreasonably withheld or delayed; provided, however, that nothing contained in this Agreement shall prevent or preclude any party from making such disclosures as may be required by applicable law, including, but not limited to, any disclosures required by applicable securities laws.

7. Reserved.

8. Indemnification.

8.1 OptiNose shall indemnify, defend and hold Hovione and its officers, directors, affiliates, agents and employees harmless from and against any and all claims, demands, costs, expenses, losses, liabilities and/or damages (including, but not limited to, reasonable attorneys' fees and court costs) of every kind and nature caused by, arising out of or resulting from (i) OptiNose's gross negligence relating to, or material breach of, this Agreement, and (ii) any claim for personal or bodily injury arising from the use of conforming API in the Finished Product or any substance, dosage composition or compound manufactured therefrom; provided, however, that in no event shall this Section apply to any claim covered by Section 8.2 below.

8.2 Hovione shall indemnify, defend and hold OptiNose and its officers, directors, affiliates, agents and employees harmless from and against any and all claims, demands, costs, expenses, losses, liabilities and/or damages (including, but not limited to, reasonable attorneys' fees and court costs) of every kind and nature caused by, arising out of or resulting from (i) Hovione's gross negligence relating to, or material breach of, this Agreement and (ii) any claim for personal or bodily injury arising from (a) the manufacture and/or distribution of API by Hovione or (b) the use or administration of the API. This indemnification obligation does not apply to any claim for personal or bodily injury arising from the use or administration of the API except to the extent such injury is attributable to a Defect in the API arising out of Hovione's gross negligence, willful misconduct, breach of this Agreement or failure to manufacture and deliver the API in accordance with the Product Specifications, the requirements of this Agreement and all Applicable Law.

8.3 Each party will promptly notify the other of any actual or threatened judicial or other proceedings which could involve either or both parties. Each party reserves the right to defend itself in any such proceedings; provided, however, that, if indemnity is sought, then the party from whom indemnity is sought shall have the right to control the defense of the claim, and the indemnified party may participate with counsel of its choice at its own expense. The Parties shall cooperate with each other to the extent reasonably necessary in the defense of all actual or potential liability claims and in any other litigation relating to the API supplied pursuant to this Agreement. Each party will cooperate with and supply information to the other relevant to any product liability claims and litigation affecting the API and/or the Finished Product, as the case may be.

8.4 ***NOTWITHSTANDING ANYTHING IN THIS AGREEMENT TO THE CONTRARY, IN NO EVENT WILL EITHER PARTY BE LIABLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES ARISING OUT OF THIS AGREEMENT, HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY. THIS LIMITATION WILL APPLY EVEN IF THE OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE; PROVIDED, HOWEVER, THAT THIS LIMITATION WILL NOT APPLY TO DAMAGES RESULTING FROM A PARTY'S WILLFUL MISCONDUCT OR GROSS NEGLIGENCE OR BREACHES BY A PARTY OF ITS DUTY OF CONFIDENTIALITY AND NON-USE OR WITH RESPECT TO INTELLECTUAL PROPERTY OR INVENTIONS IMPOSED UNDER THIS AGREEMENT OR THE CONFIDENTIALITY AGREEMENT (COLLECTIVELY, THE "EQUITABLE EXCEPTIONS") OR SUCH PARTY'S INDEMNIFICATION***

OBLIGATIONS STATED ABOVE. FURTHERMORE, EXCEPT PURSUANT TO THE EQUITABLE EXCEPTIONS, THE TOTAL AGGREGATE LIABILITY OF HOVIONE TO OPTINOSE DURING THE TERM OF THIS AGREEMENT SHALL NOT EXCEED [***].

9. Insurance. Unless the Parties otherwise agree in writing, the following terms shall apply:

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9.1 During the term of this Agreement and for a period of [***] ([***]) years after any expiration or termination of this Agreement, each of OptiNose and Hovione shall maintain in full force and effect a comprehensive general liability insurance policy, including Product Liability coverage, with minimum limits of not less than [***] Dollars ($[***]) per occurrence and as an annual aggregate, and any other insurances required by Applicable Law. Such policy shall be issued by an insurance company or insurance companies having an A.M. Best Rating of "[***]" or better.

9.2 On or before the date on which OptiNose begins to sell the Finished Product in the United States, each party shall deliver to the other party a Certificate of Insurance to verify the coverage required by this Agreement, which receipt and review by the other party shall not act as an acknowledgement of such other parties compliance with this Section 9.2. The Parties shall maintain the appropriate insurance coverage in effect for so long as OptiNose manufactures, processes, ships, stores and/or delivers any Finished Product under this Agreement and for a period of [***] ([***]) years thereafter. Each party agrees to promptly renew all insurance policies in a timely manner and if so requested by the other party to provide the other party with certificates evidencing the same or any replacement insurance. Each party further agrees to notify the other party at least [***] ([***]) days in advance of any proposed cancellation, termination or non-renewal of any such policies.

10. Term and Termination.

10.1 Term.

Unless terminated in accordance with the provisions of Section 10.2 below, the term of this Agreement shall commence on the Effective Date and shall continue in effect thereafter until the fifth (5th) anniversary of the Commercial Launch of the Finished Product (the "Initial Term"). [***] prior to expiry of the Initial Term, the Parties will discuss whether they wish to terminate the Agreement at the expiration of the Initial Term- in which case a [***] notice period will apply- or extend the Term of this Agreement. If neither party is in default, in any material respect, of any of its obligations under this Agreement, then the term of this Agreement may be extended, upon mutual agreement of the parties, for renewal terms of one (1) year (or such other period of time as the parties may mutually agree) at the expiration of the initial term or any renewal term unless and until this Agreement is terminated by any party in accordance with the terms hereof. For the avoidance of doubt, this Agreement does not automatically renew.

10.2 Grounds for Termination.

(a) Either party shall have the right to terminate this Agreement upon the occurrence of any of the following events: (i) the failure of the other party to comply with any of the terms of this Agreement or otherwise discharge its duties hereunder [***], or the breach by the other party of any of its representations or warranties herein [***], if such failure or breach is not cured within [***] ([***]) days of such breaching party's receipt of written notice specifying the nature of such failure or breach with particularity; or (ii) the making by the other party of an assignment for the benefit of its creditors, or the filing by or against such otherparty of any petition under any federal, state or local bankruptcy, insolvency or similar laws, if such filing has not been stayed or dismissed within [***] after the date thereof.

(b) OptiNose shall also have the right to suspend further performance under this Agreement and/or terminate this Agreement in its entirety, without liability except for unpaid previously delivered API that conforms with the terms hereof, if: (i) Hovione loses any approval(s) from the FDA required to perform its obligations under this Agreement or if Hovione is involved in felonious or fraudulent activities; or (ii) Hovione does not submit a Corrective And Preventive Action plan to the FDA within [***] ([***]) days of being notified of deficiencies as a result of an inspection

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of Hovione's facility; or (iii) any time prior to the end of the Term if Hovione's liability cap in Section 8.4 is exhausted. OptiNose shall also have the right to suspend further performance under this Agreement and/or terminate this Agreement in its entirety without liability, except for unpaid previously delivered API and, subject to timely delivery, API subject to Firm Forecasts, in each case, that conforms to the terms of this Agreement if the Finished Product does not reach the market or if the parties do not reach an agreement regarding a price increase pursuant to Exhibit B or Section 4.5 hereof.

(c) Hovione shall also have the right to suspend further performance under this Agreement and/or terminate this Agreement in its entirety, without liability, if OptiNose does not receive FDA approval for its Finished Product by [***].

10.3 Continuing Obligations; Survival. In no event shall any termination or expiration of this Agreement excuse either party from: (a) any obligation which survives expiration or termination of this Agreement, (b) any breach or violation of this Agreement that occurred prior to such termination or expiration, or (c) making any payment due under this Agreement with respect to any period prior to the date of expiration or termination. In each such case, full legal and equitable remedies shall remain available to address such issues. Sections 4 to 11 and 13 hereof and the applicable requirements of the Quality Agreement incorporated by reference herein shall survive any termination or expiration of this Agreement for any reason. In addition, any other provision required to interpret and enforce the Parties' rights and obligations under this Agreement shall also survive, but only to the extent required for the observation and performance of the aforementioned surviving portions of this Agreement. For purposes of clarity, Hovione's obligation to supply API shall not survive termination or expiration of this Agreement.

11. Agreement to Consummate; Further Assurances. Subject to the terms and conditions of this Agreement, each of the Parties hereto agrees to use [***] to do all things necessary, proper or advisable under this Agreement, applicable laws and regulations to consummate and make effective the transactions

contemplated hereby. If, at any time after the date hereof, any further action is necessary, proper or advisable to carry out the purposes of this Agreement, then, as soon as is reasonably practicable, each party to this Agreement shall take, or cause its proper officers to take, such action.

12. Force Majeure. Any delay in the performance of any of the duties or obligations of either party hereto (except for the payment of money) caused by an event outside the affected party's reasonable control shall not be considered a breach of this Agreement and the time required for performance shall be extended for a period equal to the period of such delay. Such events shall include, but will not be limited to, acts of God, acts of a public enemy, acts of terrorism, insurrections, riots, injunctions, embargoes, fires, explosions, floods, or other unforeseeable causes beyond the reasonable control and without the fault or negligence of the Party so affected. The Party so affected shall give prompt written notice to the other party of such event. The suspension of performance shall be of no greater scope and no longer duration than is reasonably required and the nonperforming Party shall use its [***] to remedy its inability to perform; provided, however, that in the event the suspension of performance continues for [***] ([***]) days after the date of the occurrence, and such failure to perform would constitute a material breach of this Agreement in the absence of such force majeure event, the non-affected Party may terminate this Agreement immediately by written notice to the affected Party.

13.0 General Provisions.

13.1 Assignment. Neither this Agreement nor any interest herein may be assigned, in whole or in part, by either party without the prior written consent of the other, which consent shall not be unreasonably withheld or delayed, except that either party may assign its rights and obligations under this Agreement: (a) to an affiliate, division or subsidiary of such party; and/or (b) to any third

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party that acquires all or substantially all of the stock or assets of such party, whether by asset sale, stock sale, merger or otherwise, and, in any such event such assignee shall assume the transferring party's obligations hereunder. In addition, OptiNose may assign this Agreement, or its interest herein, to a licensee of OptiNose's Intellectual Property rights with respect to the Finished Product. However, notwithstanding any such assignment, in the case of an assignment to an affiliate, division or subsidiary, the transferring party shall remain liable under this Agreement (in addition to the transferee) unless such liability is specifically waived in writing by the other party hereto. Subject to the foregoing, this Agreement shall be binding upon and inure to the benefit of the Parties hereto, and their respective successors and permitted assigns.

13.2 Notice. Any notice or request required or permitted to be given under or in connection with this Agreement shall be deemed to have been sufficiently given if in writing and sent by: (a) personal delivery against a signed receipt therefor, (b) certified mail, return receipt requested, first class postage prepaid, (c) nationally recognized overnight delivery service (signature required), or (d) electronic mail (with any notices to send by electronic mail to also be sent by one of the other methods set forth in this Section), addressed as follows:

If to Hovione, then to:	Hovione FarmaCiencia, SA Estrada do Paço do Lumiar — Campus do Lumiar Edifício R 1649-038 Lisboa Portugal Attention: Chief Executive Officer
With a copy, sent as provided herein, to:	Hovione FarmaCiencia, SA Estrada do Paço do Lumiar — Campus do Lumiar Edifício R 1649-038 Lisboa Portugal Attn: General Counsel
If to OptiNose, then to:	To OptiNose US: OptiNose US, Inc. 1020 Stony Hill Road Suite 300 Yardley, PA 19067 Attn: Chief Executive Officer To OptiNose UK: OptiNose UK, Ltd. Hunts Rise South Marston Park, Wiltshire SN3 4TG, England Attention: Chief Executive Officer To OptiNose Norway: OptiNose AS Gaustadalléen 21 0349 Oslo, NORWAY

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Attention: Chief Executive Officer

With a copy, sent as provided herein, to: OptiNose US, Inc.
1020 Stony Hill Road
Suite 300
Yardley, PA 19067
Attn: Chief Legal Officer

Any party may alter the address to which communications are to be sent by giving notice of such change of address in conformity with the provisions of this Section providing for the giving of notice. Notice shall be deemed to be effective, if personally delivered, when delivered; if mailed, at midnight on the third business day after being sent by certified mail; if sent by nationally recognized overnight delivery service, on the next business day following delivery to such delivery service; and if sent by confirmed electronic mail, on the next business day following transmission (so long as any notices sent by electronic mail are also sent by one of the other methods set forth in this Section).

13.3 Entire Agreement. This Agreement and (such applicable Quality agreement that may be executed by the parties hereunder and incorporated herein by reference as if fully set forth at length as contemplated in Section 1.17 above) sets forth the entire agreement and understanding between the Parties as to the subject matter hereof and merges all prior discussions and negotiations between them, and neither party shall be bound by any conditions, definitions, warranties, understandings or representations with respect to such subject matter other than as expressly provided herein or as duly set forth on or subsequent to the date hereof in writing and signed by a proper and duly authorized officer or representative of the Parties to be bound thereby, except that this Agreement, other than expressly set forth in Section 6.2 above, shall not supersede any separate confidentiality or non-disclosure agreement that may have been, or that may be, entered into by the Parties, except as to term. To the extent that any conflict arises among the documents that comprise this Agreement (including any schedules or exhibits), the terms and conditions of this Agreement shall govern. The terms and conditions of this Agreement shall control over and supersede any contrary term in any purchase order.

13.4 Amendment and Modification. This Agreement may be amended, modified and supplemented only by written agreement duly executed and delivered by each of the Parties hereto.

13.5 Waiver. The failure of any party to exercise any right or to demand the performance by the other party of duties required hereunder shall not constitute a waiver of any rights or obligations of the Parties under this Agreement. A waiver by any party of a breach of any of the terms of this Agreement by any other party shall not be deemed a waiver of any subsequent breach of the terms of this Agreement.

13.6 Governing Law. This Agreement is to be governed by and construed in accordance with the laws of the State of New York, notwithstanding any conflict of law provisions to the contrary. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to this Agreement. Any action which in any way involves the rights, duties and obligations of either party hereto under this Agreement shall be brought exclusively in the federal courts sitting in the State of New York and the Parties to this Agreement hereby submit to the subject matter and personal jurisdiction of and venue in any such court. The Parties waive any and all rights to have any dispute, claim or controversy arising out of or relating to this Agreement tried before a jury.

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13.7 Severability. Whenever possible, each provision of this Agreement shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability shall not affect any other provision of this Agreement or any action in any other jurisdiction, to the extent reasonably severable without altering the parties' original intent but this Agreement shall be reformed, construed and enforced in such jurisdiction as if such invalid, illegal or unenforceable provision had not been contained herein. In such case, the parties shall meet and diligently agree on a valid replacement term that tracks as closely as possible, the Parties' original intent.

13.8 Construction. The Parties have participated jointly in the negotiation and drafting of this Agreement. In the event of any ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring or disfavoring any party by virtue of the authorship of any of the provisions of this Agreement. As used in this Agreement, the singular shall include the plural and vice versa, and the terms "include" and "including" shall be deemed to be immediately followed by the phrase "but not limited to." The terms "herein" and "hereunder" and similar terms shall be interpreted to refer to this entire Agreement, including any schedules attached hereto.

13.9 Parties/Relationship. Neither party shall hold itself out to third parties as possessing any power or authority to enter into any contract or commitment on behalf of any other party. This Agreement is not intended to, and shall not; create any agency, partnership or joint venture relationship between or among the Parties. Each Party is an independent contractor with respect to the other. No Party is granted any right or authority to assume or create any obligation or responsibility, express or implied, on behalf of, or in the name of any other Party hereto, or to bind any other party hereto in any manner or with respect to anything, whatsoever, or receives any license hereunder, otherwise other than as limited to the purposes of this Agreement and to the extent necessary to provide the services hereunder.

13.10 Captions. The captions and headings in this Agreement are inserted for convenience and reference only and in no way define or limit the scope or content of this Agreement and shall not affect the interpretation of its provisions.

13.11 Counterparts. This Agreement may be executed in multiple counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same instrument.

13.12 Subcontractors and Affiliates. Hovione Inter Ltd. shall either perform the obligations of Hovione hereunder or shall cause its Affiliates to perform such obligations in accordance with the terms hereof. Any work that is to be done by any Party under this Agreement may be subcontracted to a third party in accordance with the approved NDA, cGMPs and any applicable FDA guidelines which relate to the work to be performed under the direction and supervision of such party, as the case may be; provided, however, that: (a) advanced notice of the proposed use of the subcontractor is first provided to the other party with an opportunity to object, (b) the subcontracting party exercises reasonable diligence in selecting such subcontractor (c) requires the subcontractor to accept and be bound in writing by the terms and conditions of this Agreement (including with respect to any Confidentially, Non-Use, Inventions hereunder) , and (d) as between the parties hereto, the subcontracting party shall be and remain responsible for all acts and omissions of any such subcontractor.

13.13 Schedules and Exhibits. All Schedules and Exhibits referenced in this Agreement, if any, are hereby incorporated by reference into, and made a part of, this Agreement.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

13.14 Currency. All sums set forth in this Agreement and ay appendices, exhibits or schedules hereto are, and are intended to be, expressed in U.S. Dollars.

13.15 OptiNose Parties. Notwithstanding anything in this Agreement to the contrary, (i) each of OptiNose US, OptiNose UK and OptiNose Norway shall be and is hereby individually vested with each and every right of OptiNose under this Agreement, (ii) the OptiNose parties shall inform Hovione which OptiNose party will be acting under this Agreement (the "Acting OptiNose Party") and thereafter Hovione shall be entitled to rely exclusively on instructions from such Acting OptiNose Party until notified by the OptiNose parties that a new Acting OptiNose Party has been so designated, and (iii) each of OptiNose US, OptiNose UK and OptiNose Norway shall be severally, and not jointly, liable or responsible to Hovione for any obligations of OptiNose to Hovione contained in this Agreement resulting from any actions or inaction by it as the Acting OptiNose Party or as a result of any event or occurrence while it was the Acting OptiNose Party and shall be the sole OptiNose party liable and responsible to Hovione for such obligation.

[Signature Page Follows]

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IN WITNESS WHEREOF, the parties have executed the Agreement as of the date first above written.

Hovione Inter Ltd:

By: /s/ Guy Villax

Name: G. Villax

Its: Chief Executive

Date: 7 August 2017

OptiNose US, Inc:

By: /s/ Peter Miller

Name: Peter Miller

Its: CEO

Date: 8/9/17

OptiNose UK, Ltd:

By: /s/ Peter Miller

Name: Peter Miller

Its: CEO

Date: 8/9/17

OptiNose AS:

By: /s/ Peter Miller

Name: Peter Miller

Its: CEO

Date: 8/9/17

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EXHIBIT A

Product Specifications

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EXHIBIT B

Pricing

A. Development Phase (Clinical Supply)

The price of the API is USD $[***] per gram.

B. Commercialisation Phase

API price schedule for the Commercialization Phase (API manufactured for commercial use) will depend of the total annual quantity forecast provided to Hovione by OptiNose prior to the beginning of each calendar year.

Annual quantity in kg	Price in $ per g
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

For annual quantities, defined as the volume purchased over 12 months from 1st January each contractual year, different from [***],[***],[***] and [***] kg price per kg for a given calendar year shall be the [***] between the defined [***]. For the initial year all API purchased for the initial commercial launch quantities will be included in the first contractual year.

Example given:

[***].

The interpolated price per gram between [***] and [***] kg quantity is [***] kg ([***] kg — [***] kg) times the interpolated value, which is [***].

Therefore the price for [***] kg would be as follow:

[***]

If the annual consumption at the end of the year is lower than [***] kg OptiNose will pay to Hovione the additional amount and if the annual quantity is higher than [***] kg Hovione will reimburse OptiNose for amount difference no later than the end of January following the end of that year.

Pricing Adjustments

Each January 1 during the term of this Agreement, but not before the first anniversary of the Commercial Launch, Hovione may adjust the transfer price based on (but not in excess of) an increase in Hovione's cost of supply. Hovione will provide to OptiNose written notice of any such increase decrease to the transfer price for the API by October 1 of the year preceding the price increase. Such notice shall include reasonable detail, including supporting documentation of the increase in cost of supply, justifying the basis for such price increase. In the event that a price increase hereunder materially negatively impacts the profitability of the Finished Product for OptiNose, then OptiNose shall notify Hovione and, if the parties cannot agree on a transfer price

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following good faith negotiations, OptiNose may terminate this Agreement in accordance with the provisions of Section 4.5. Notwithstanding the foregoing, any increase due to (a) the change in cost of raw materials shall be equal to (and not more than) Hovione actual increase in costs for such raw materials; provided, however, that any such change will not include the amount of any price change already implemented under Section 4.5 of this Agreement, and (b) Hovione's actual change in its labor and overhead costs shall be as consistently applied to all products manufactured by Hovione incurred over the prior [***] ([***]) month period ("Conversion Cost"); provided, however, that if such change in Conversion Cost is an increase, the percent change may not exceed the percentage increase over the prior [***] ([***]) month period in the Pharmaceutical Producer Price Index Pharmaceutical Preparation Manufacturing Ref. No. pcu325412325412 ("PPI") as reported by the United States Department of Labor Bureau of Labor Statistics.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

MANUFACTURE AND SUPPLY AGREEMENT

This **MANUFACTURE AND SUPPLY AGREEMENT** (the "Agreement") is made as of August 18, 2017 (the "Effective Date") by and among, on the one hand, OptiNose US, Inc., duly organized and existing under the laws of Delaware and having offices located at 1020 Stony Hill Road, Suite 300, Yardley, PA 19067 (referred to herein as "OptiNose US"), OptiNose UK Ltd. duly organized and existing under the laws of England and having offices located at Hunts Rise, South Marston Park, Wiltshire, SN3 4TG, England (referred to herein as "OptiNose UK"), and OptiNose AS, duly organized and existing under the laws of Norway and having offices located at Gaustadalleen 21 0349 Oslo, Norway (referred to herein as "OptiNose Norway", and collectively with OptiNose US and OptiNose UK, "OptiNose"), and, on the other hand, Contract Pharmaceuticals Limited Canada, duly organized under the laws of the Province of Ontario and having offices located at 7600 Danbro Crescent, Mississauga, Ontario Canada L5N 6L6 (referred to herein as "CPL"). OptiNose and CPL are each a "Party" and together constitute the "Parties" under this Agreement.

WHEREAS, CPL is a contract manufacturer that manufactures and supplies pharmaceutical products to third party companies; and

WHEREAS, OptiNose desires that CPL manufacture and supply finished dose forms of the Product (as defined below) appropriate for marketing, commercial sale and distribution in accordance with the requirements of this Agreement;

NOW, THEREFORE in consideration of the mutual covenants and agreements contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

ARTICLE 1
DEFINITIONS

The following capitalized terms, whether used in the singular or plural, shall have the meanings assigned to them below for purposes of this Agreement and all Exhibits and Schedules hereto:

1.1 "**Affiliate(s)**" means any corporation, firm, partnership or other entity that controls, is controlled by or is under common control with a Party. For purposes of this definition, "control" shall mean the ownership of at least fifty percent (50%) of the voting share capital of such entity or any other comparable equity or ownership interest, or the power to direct the management and policies of such person, directly or indirectly, whether through the ownership of voting securities, by contract or otherwise.

1.2 "**ANDA/NDA"** means any abbreviated new drug application or new drug application required to manufacture, market and sell finished dosage forms of the Products in the US Territories (as defined herein) filed by OptiNose with the FDA, and any supplements and amendments thereto which may be filed by OptiNose from time to time.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

1.3 "**Annual Minimum"** means the lesser of (i) [***]% of the Annual Threshold or (ii) the Annual Threshold minus [***] units of Product (the equivalent of [***] full [***] kg batch at the theoretical yield); provided, however, that from and after the timely cure of a Supply Failure described in subsections (i) and (ii) of Section 2.11 and OptiNose's resumption of ordering from CPL as described in Section 2.11, the applicable percentage in subsection (i) above shall be reduced by [***]% (for example, [***]% shall be reduced to [***]% upon the first instance, and then to [***]% upon the next instance), provided such percentage shall not go below [***]%.

1.4 "**Annual Threshold"** means the actual annual aggregate requirements of OptiNose for the Product in the Territory, as reflected by OptiNose's records of the number of Product units ordered from CPL and any other vendors by OptiNose, or manufactured by OptiNose itself, during the calendar year.

1.5 "**API"** means the active pharmaceutical ingredient, fluticasone propionate required for the Product.

1.6 "**Applicable Laws**" shall mean all laws, ordinances, codes, rules and regulations applicable: (a) to the obligations of CPL in the jurisdiction of manufacture to the manufacturing of the Product or any aspect thereof including without limitation the FD&C Act and cGMP; and (b) to the obligations of OptiNose.

1.7 "**Bailment Agreement**" means that certain Master Bailment Agreement by and between OptiNose US and CPL, dated as of June 24, 2016.

1.8 "**Batch Records**" shall have the meaning set forth in Section 6.1.

1.9 "**Binding Period**" shall have the meaning set forth in Section 2.3.

1.10 "**Calendar Quarter**" means a period of three (3) consecutive months commencing on January 1, April 1, July 1 or October 1 of any calendar year.

1.11 **"Capacity"** means the facility space, equipment, utilities, maintenance capabilities, infrastructure, human capital, and other capabilities sufficient to manufacture the Product.

1.12 "**Confidential Information**" shall have the meaning set forth in Section 8.2.

1.13 "**Conversion Cost"** shall have the meaning set forth in Section 4.1.5.

1.14 "**CPL Indemnitee**" shall the meaning set forth in Section 9.2.

1.15 "**Data**" shall refer to all data, materials, plans, reports, test results and other information developed solely by or for OptiNose in connection with the Manufacture of the Product.

1.16 "**Defective Product**" means any Product that contains a Patent Defect or Latent Defect.

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1.17 "**Delivery"** means delivery of Product after Release to Distribution, packed pursuant to Section 2.12 of this Agreement, F.C.A. CPL's loading dock at 7600 Danbro Crescent, Mississauga, ON Canada L5N 6L6.

1.18 "**Effective Date**" means the date set forth in the preamble of this Agreement.

1.19 "**Environmental Laws**" means all applicable laws, directives, rules, regulations, guidelines and court orders currently in existence or hereafter adopted relating to occupational safety and health, or safety, preservation or protection of the environment and/or relating to the release, threatened release, handling, treatment, transportation or storage of wastes or materials in the jurisdiction of manufacture.

1.20 "**Facility**" means; a) for manufacturing and Delivery purposes, CPL's manufacturing facility located at 7600 Danbro Crescent, Mississauga, Ontario, Canada L5N 6L6 or any other CPL controlled facility approved in writing by OptiNose (such approval not to be unreasonably delayed or withheld); and b) for laboratory testing purposes: 2145 Meadowpine Blvd. Mississauga, Ontario, Canada L5N 6R8.

1.21 "**FDA**" means the United States Food and Drug Administration and any successor bodies.

1.22 "**FD&C Act"** means the Federal Food, Drug, and Cosmetic Act, as amended, and includes the rules, and regulations and guidances promulgated thereunder.

1.23 "**Final Approval Date"** means the date OptiNose has received all regulatory approvals for the commercial sale of the Product in the Territory.

1.24 "**Force Majeure**" shall have the meaning set forth in Section 11.5.

1.25 "**Initial Term**" shall have the meaning set forth in Section 11.1.

1.26 "**Intellectual Property**" means any and all of the following, and rights in, arising out of, or associated therewith: U.S. and non-U.S. (a) patents, utility models, supplementary protection certificates and applications thereof (including provisional applications, invention disclosures, certificates of invention and applications for certificates of invention) and divisionals, continuations, continuations-in-part, reissues, renewals, extensions, re-examinations, and equivalents thereof, (b) trade secrets, know-how, proprietary information, inventions, discoveries, improvements, technology, technical data, and research and development, whether or not patentable, (c) trademarks, service marks, trade dress, trade names, and equivalents thereof, (d) copyrights, mask works, registrations and applications thereof, and any equivalents thereof.

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1.27 "**Latent Defect**" means any instance where a Product fails to conform to the Specifications, Applicable Laws or the Quality Agreement, in each case if proximately caused by the acts or omissions of CPL prior to Delivery hereunder (which shall include CPL's failure to confirm that the OptiNose Components conform to the Specifications, and any failure to conform arising from the Raw Materials other than the OptiNose Components), which is not a Quantitative Defect or Patent Defect.

1.28 "**Losses**" shall have the meaning set forth in Section 9.1.

1.29 "**Manufacture(d)**" or "**Manufacturing**" means the compounding, filling, manufacture, assembly, packaging and, testing of the API and Raw Materials into the Product in accordance with the Specifications and the terms and conditions set forth in this Agreement.

1.30 "**Notice(s)**" shall have the meaning set forth in Article 13.

1.31 "**OptiNose Components**" shall have the meaning set forth in Section 2.1(e).

1.32 **"OptiNose Equipment"** shall mean OptiNose Equipment as defined in the Bailment Agreement, as modified by Section 3.1 to include the items described on Schedule 1 attached hereto.

1.33 "**OptiNose Indemnitee**" shall have the meaning set forth in Section 9.1.

1.34 "**OptiNose Vendors**" shall have the meaning set forth in Section 2.1(e).

1.35 "**Patent Defect**" shall mean any instance where a Product fails to conform to the Specifications, Applicable Laws or the Quality Agreement, in each case if proximately caused by the acts or omissions of CPL prior to Delivery hereunder (which shall include CPL's failure to confirm that the OptiNose

Components conform to the Specifications, and any failure to conform arising from the Raw Materials other than the OptiNose Components), where such failure is or was discovered upon actual inspection, if any, upon receipt by OptiNose or its designee.

1.36 "**Product**" means the full saleable or sample product unit for OPN-375 including without limitation active ingredient, delivery system, container closure system, and market package.

1.37 "**Purchase Order**" shall have the meaning set forth in Section 2.5.

1.38 "**Purchase Price**" shall have the meaning set forth in Section 4.1.1.

1.39 "**Quality Agreement"** shall mean that Quality Agreement to be entered between the parties related to production of the Product.

1.40 **"Quantitative Defect"** means any instance in which CPL has Delivered a quantity of Product that is at least [***]% less than the quantity stated in any invoice or bill of lading.

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1.41 "**Raw Material**" means all raw materials, including API, supplies, components and packaging components and material necessary to manufacture and ship the Product in accordance with the Specifications.

1.42 "**Regulatory Authority**" means any governmental authority within the Territory or applicable to any Facility (including, but not limited to, the FDA and the applicable Canadian Health Authority) involved in regulating any aspect of the development, manufacture, testing, packaging, storage, handling, market approval, sale, distribution, Delivery or use of the Products in accordance with Applicable Laws.

1.43 **"Release to Distribution"** shall mean the written approval provided by OptiNose to CPL approving the Batch Records and authorizing CPL to Deliver the Products.

1.44 "**Renewal Term**" shall have the meaning set forth in Section 11.1.

1.45 "**Required Change**" shall have the meaning set forth in Section 2.2.2.

1.46 "**Rolling Forecast**" shall have the meaning set forth in Section 2.3.

1.47 "**Specifications**" means the procedures, requirements, standards, quality control testing and other data and requirements for the Product set forth in Exhibit A as such Exhibit may be amended in accordance with the terms of this Agreement.

1.48 "**Supply Failure**" has the meaning provided in Section 2.11.

1.49 "**Term**" shall have the meaning set forth in Section 11.1.

1.50 "**Territory**" means the United States of America, its territories, possessions, commonwealths, and any other country which the Parties agree in writing to add to this definition of Territory in an amendment to this Agreement.

ARTICLE 2
MANUFACTURE AND SUPPLY

2.1 Purchase and Supply of Product.

(a) Overview. From and after the Final Approval Date and during the Term hereof, OptiNose shall (except as otherwise provided in this Agreement) purchase at least the Annual Minimum of Product from CPL in accordance with the terms and conditions hereof, and CPL shall Manufacture the Product at the Facility in accordance with the Specifications, Applicable Laws and the terms and conditions of this Agreement. It is expressly understood and agreed that at OptiNose's sole cost and expense, OptiNose shall have the right to qualify a secondary supplier of Product (a "**Back-Up Supplier**") and may purchase Product from such Back-Up

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Supplier so long as it purchases the Annual Minimum from CPL. CPL agrees to promptly (and in any event within [***] days) transfer to such Back-Up Supplier all documentation related to the processes, protocols, procedures, methods and tests relating to the Manufacturing of Product in accordance with the Specifications and Applicable Law. In connection with a transfer to a Back-Up Supplier, CPL shall provide OptiNose a list of all suppliers of Raw Materials and any other components used in connection with the manufacture of the Product. [***]. The obligations of CPL under this Section 2.1(a) shall survive for [***] ([***]) days after the expiration or termination of this Agreement.

(b) Labeling. OptiNose shall provide CPL with all artwork, copy or other materials necessary for the Product labels, printed packaging materials and Product inserts. CPL shall accurately implement copy changes as reasonably required by OptiNose, and CPL shall not make any changes to the artwork, copy or other materials without the prior written approval of OptiNose. CPL shall ensure that all Product is packaged and assembled with labeling affixed in accordance with the Specifications, before Delivery of any such Product.

(c) Annual Minimum. Within [***] ([***]) days following the end of each calendar year during the Term of this Agreement and within [***] (***) days following the expiry or earlier termination of the Term of this Agreement, OptiNose shall determine the Annual Threshold and the Annual Minimum and shall provide such numbers to CPL together with sufficient information, certified by an officer of OptiNose to enable CPL to confirm OptiNose's determination and the quantity of any deficiency. If OptiNose fails to order from CPL the Annual Minimum, then as OptiNose's sole and exclusive liability and CPL's sole and exclusive remedy, OptiNose shall, within [*******] ([*******]) days following determination of such fact, pay to CPL an amount equal to [*******] as noted on Exhibit B hereto. For purposes of calculating any amount to be paid by OptiNose to CPL for an Annual Minimum shortfall, the supply prices in effect at the end of the applicable annual period in which the shortfall occurred shall apply.

(d) Raw Material Procurement. OptiNose, [***], is responsible for the purchase of all API, cap and liquid delivery subassembly, and CPL is responsible for the purchase of all other Raw Materials. CPL is responsible for the receipt, storage, sampling, testing and release for use of all Raw Materials, including without limitation the OptiNose Components, according to Specifications, the Quality Agreement and Applicable Laws. For some Raw Materials, OptiNose may instruct CPL to use specific suppliers to leverage existing contracts. CPL shall be entitled to include in the Purchase Price [***].

(e) Selected Vendors. Unless otherwise instructed by OptiNose at a subsequent date, CPL shall order the Raw Material identified in Schedule 3 attached hereto from those suppliers identified thereon (the "OptiNose Vendors"). The Raw Material to be supplied by those suppliers set forth in Schedule 3, as such Schedule may be amended from time to time pursuant to the terms of this Agreement, are collectively referred to as the "OptiNose Components". With each of these vendors, OptiNose shall enter supply agreements, which agreements shall provide for CPL to be the agent of OptiNose for the limited purposes of (i) instructing each vendor on the time and destination for shipments of the relevant Raw Material from each such vendor, and (ii) inspecting and ensuring that Raw Material provided by each such vendor meets the applicable specifications. Further, CPL shall enter quality agreements with such vendors, in consultation

with OptiNose (including OptiNose's review and comment on such quality agreements), requiring such vendors to comply with Applicable Law and to supply their respective Raw Material in a manner that enables CPL to Manufacture and supply the Product in compliance with Applicable Law and in accordance with the Specifications. CPL shall conduct audits [***] of, and otherwise manage, suppliers of the OptiNose Components as appropriate to ensure compliance with the above-referenced quality agreements. By mutual written agreement, OptiNose and CPL may decide to adjust responsibility and any fee for Raw Material procurement. If such audits by CPL result in CPL determining that such vendors are not in compliance with such quality agreements, CPL shall inform OptiNose of CPL's audit findings and OptiNose shall negotiate to resolve disputes regarding any right, obligation, duty or liability which may arise between CPL and the vendor under the quality agreement, provided it is understood and agreed that CPL shall, upon request by OptiNose, use [***] to assist OptiNose in any such investigations and dispute resolution [***]. Any failure by CPL to meet Product Delivery timelines as a result of such dispute resolution with an OptiNose Vendor or as a result of non-compliance by an OptiNose Vendor with the above referenced supply and/or quality agreements shall not be a Supply Failure and/or a breach of this Agreement, save for an OptiNose Vendor failure to provide Raw Material that conforms to the Specifications and such non-conformance was not detected by CPL in accordance with CPL's obligations under this Agreement or the Quality Agreement. Notwithstanding anything to the contrary in this Agreement and/or in the Quality Agreements between CPL and the OptiNose Vendors and/or between CPL and OptiNose, resolution of any quality issues and/or performance of Raw Materials received by CPL from the OptiNose Vendors (other than confirmation by CPL that such Raw Materials conform to the Specifications) shall be the responsibility of OptiNose. Upon CPL's receipt of OptiNose Components, CPL shall inspect such OptiNose Components and ensure that such OptiNose Components provided by such OptiNose Vendor meets the applicable specifications for such OptiNose Components and that no patent defects or quantitative defects exist. CPL shall do such inspection within [***] ([***]) business days of its receipt of such OptiNose Components, provided it shall have [***] ([***]) days for its inspection of the API. Should the OptiNose Components fail any such inspection or should CPL identify any issues with the OptiNose Components CPL shall provide written notice to OptiNose and the applicable OptiNose Vendor within [***] of such failure and/or issue.

2.2 Product Information.

2.2.1 Source/License. Subject to the terms of this Agreement, including but not limited to the warranties and representations of CPL set forth in Article 7 and the obligations of CPL set forth in Article 8, OptiNose shall provide to CPL, and hereby grants CPL a limited (as set forth in the next sentence hereof) license to use, all Specifications, formulas, processes, analytical methods, Data, regulatory approvals, technology, Confidential Information and Intellectual Property of OptiNose necessary for the Manufacture of the Product in accordance with this Agreement (including, but not limited to, CPL's full compliance with the confidentiality and Intellectual Property obligations hereof). The license granted to CPL pursuant to this Section shall be a non-exclusive, royalty-free license (without the right to grant sublicenses) limited to CPL's use solely for purposes of fulfilling its obligations under, or otherwise effectuating, this Agreement.

2.2.2 Specifications. All Specifications shall be provided by OptiNose to CPL, or created by CPL or a third party and approved by OptiNose and CPL. Any changes in the Specifications agreed to by the Parties from time to time shall be in writing, dated and signed by the Parties. Except as provided in this subsection, no change in the Specifications, Manufacturing process, or Facility (other than changes to the Facility that are not prohibited under the Quality Agreement and do not substantially adversely impact the Manufacture of the Product), shall be implemented by CPL until the Parties have agreed in writing to such change, the implementation date of such change, any regulatory implications, and any increase or decrease in costs, expenses or fees associated with such change. CPL shall respond promptly to any request made by OptiNose for a change in the Specifications, and both Parties shall use [***] to agree to the terms of such change in a timely manner. If changes in Specifications result in implementation and/or increased Product costs to CPL, [***]. Changes resulting in reduction in cost of goods, following reimbursement or recapture of costs incurred by CPL to effect such reduction in costs, [***]. CPL shall provide documentation of the changes in any such costs. Notwithstanding the foregoing, the Parties shall promptly notify each other of any change in Specifications or Manufacturing process requested or required by a Regulatory Authority or an Applicable Law (a "Required Change"), and the Parties

shall thereafter work in good faith to agree in writing upon the change in Specification or process, its effective date and the costs, expenses and fees associated with such Required Change (which, CPL shall in any event use [***] to limit to the reasonable and necessary costs of effecting such Required Change) and to effect a corresponding written amendment to this Agreement reflecting same. However, it is understood and agreed that, if the Parties fail to agree upon the change in Specification or process to be made in response to a Required Change, OptiNose shall have the right to terminate this Agreement upon not less than [***] ([***]) days prior written notice to CPL, and if OptiNose does not so terminate this Agreement, CPL shall make each Required Change that OptiNose requests in writing; provided that CPL's implementation of such Required Change does not have a material effect on the CPL facility or CPL's ability to carry on its business in the ordinary course consistent with how it was being conducted prior to OptiNose's Required Change request, while the Parties continue negotiations in good faith as to costs, expenses and fees; provided, further, that [***]. In the event that the implementation of such Required Change would have a material effect on the CPL facility or CPL's ability to carry on its business in the ordinary course consistent with how it was being conducted prior to OptiNose's change request, and CPL provides OptiNose written notice thereof as soon as is reasonably practicable (provided such notice is not provided more than [***] ([***]) business days after CPL determines a Required Change would have such a material effect), OptiNose shall have the right to terminate this Agreement upon written notice to CPL.

2.3 Forecasts. Commencing on the Effective Date, OptiNose shall provide CPL each month with non-binding, rolling [***] ([***]) month forecast of its Product requirements ("Rolling Forecast"). OptiNose shall be obligated to purchase the unit quantity of Products for the first [***] months of any Rolling Forecast that was requested in the Rolling Forecast for that [***] ([***]) month period (a "Binding Period"). During the [***] of each calendar month OptiNose will issue a new Rolling Forecast which shall be updated monthly by OptiNose no later than the [***] ([***]) business day of each calendar month with the Binding Period updated with each Rolling Forecast to include the new [***] month of the going forward [***] month Rolling Forecast. CPL shall participate in periodic sales and operations planning meetings with

OptiNose and other suppliers as both Parties reasonably deem appropriate. Notwithstanding any other provision of this Agreement, for Rolling Forecasts issued prior to Final Approval Date, OptiNose shall not be required to place any Purchase Order for quantities that otherwise would be applicable for any Binding Period, and OptiNose may, in its sole discretion, cancel or modify any Purchase Order placed prior to the Final Approval Date; [***]. The Parties will work collaboratively together regarding planning of production of initial Product required to build initial launch quantities of Product in anticipation of the Final Approval Date. During the term of this Agreement, CPL shall ensure that, subject to utilization of OptiNose Equipment, it has the Capacity to meet all of OptiNose's requirements for Product in a timely manner based on the applicable Rolling Forecast under this Agreement and subject to the Product's standard lead time pursuant to Section 2.5; provided that if new or additional OptiNose Equipment is required CPL will inform OptiNose with sufficient lead time for such OptiNose Equipment to be acquired and qualified for use under this Agreement.

2.4 Reliance on Forecasts. CPL may order those Raw Materials necessary or appropriate to fulfill the forecasted Product requirements at the forecasted times, taking into account necessary lead times, agreed upon order policies, any minimum quantities required by suppliers, the Binding Period and any Purchase Orders for Product outside the Binding Period. In no case shall CPL maintain more than a [***] ([***]) month supply of Raw Materials without OptiNose's prior written consent. If the Purchase Orders for the corresponding period from OptiNose are for a quantity less than would reasonably support the amount of Raw Materials that CPL purchased in good faith in accordance with the preceding sentence, and CPL warrants and represents that it is ultimately, in the exercise of [***], unable to return such Raw Materials or use them, including to make Product hereunder within [***] ([***]) months of receipt of such Raw Materials by CPL and provided [***] has not already been provided by OptiNose for such Raw Materials otherwise under this Agreement, [***]; provided, however, that if CPL later uses such Raw Materials, [***].

2.5 Purchase Orders. OptiNose shall submit written Purchase Orders on its standard form for Product specifying: (a) the number of units of Product to be purchased, (b) the Purchase Price (determined in accordance with Exhibit B hereto) and (c) the expected date of Delivery ("Purchase Orders"). For Delivery of each Product, unless agreed with CPL under the circumstances, a Purchase Order shall not request a date of Delivery sooner than [***] ([***]) calendar days from the date of the Purchase Order. CPL shall confirm Purchase Orders and projected dates of Delivery within [***] of receiving a Purchase Order, and CPL may only reject such a Purchase Order if permitted under Section 2.7 of this Agreement or in the event of Force Majeure. Failure of CPL to confirm any Purchase Order within the [***] period shall be deemed to be acceptance of such Purchase Order.

2.6 Terms of Sale. ANY ADDITIONAL OR INCONSISTENT TERMS OR CONDITIONS OF ANY STANDARDIZED FORM OF EITHER PARTY, INCLUDING WITHOUT LIMITATION, ANY PURCHASE ORDER, INVOICE, CONFIRMATION, OR ACKNOWLEDGMENT GIVEN OR RECEIVED PURSUANT TO THIS AGREEMENT WILL HAVE NO EFFECT AND SUCH TERMS AND CONDITIONS ARE HEREBY EXCLUDED UNLESS THE PARTIES SPECIFICALLY AGREE IN WRITING SIGNED BY BOTH

PARTIES FOR SUCH TERMS OR CONDITIONS TO SUPPLEMENT OR SUPERCEDE THE TERMS AND CONDITIONS OF THIS AGREEMENT.

2.7 Purchase Orders for the Binding Period. OptiNose shall issue Purchase Orders for unit quantities of Product that are equal to or greater than the amount set forth in the Rolling Forecast for the applicable Binding Period, and CPL shall accept all such Purchase Orders except to the extent such Purchase Orders are for unit quantities of Product greater than [***]% of the amount set forth in the Rolling Forecast for such Binding Period (rounding such calculation up to the nearest batch size). In the event OptiNose issues Purchase Orders for unit quantities in excess of such [***]% of the Rolling Forecast for an applicable Binding Period (rounding such calculation up to the nearest batch size) or requests a change to a Purchase Order to increase unit quantities, CPL shall use [***] to accept (wholly or in part) such Purchase Orders for additional quantities or requested increases. Within [***] ([***]) business days of receipt of a Purchase Order for unit quantities in excess of [***]% of the Rolling Forecast for an applicable Binding Period ([***]) or request for a change to a Purchase Order to increase unit quantities, CPL shall (subject to its obligations pursuant to the foregoing sentence) notify OptiNose whether it can accept, wholly or in part, such Purchase Order or requested increase, and for all amounts that CPL accepts CPL shall be obligated to supply such excess quantities as if it was a part of the original Purchase Order governed by the terms of this Agreement. In the case of a partial acceptance, CPL shall specify quantities

and/or the date of projected Delivery. OptiNose shall not decrease the quantity of Product ordered in a Purchase Order. Except to the extent set forth above, failure of CPL to accept the increased quantity of Product as a result of a change to a Purchase Order in excess of the original amount ordered shall not be a breach of this Agreement.

2.8 Order Cancellation. Subject to the other provisions of this Agreement, in the event that OptiNose cancels or defers any Purchase Order issued by OptiNose and confirmed by CPL, OptiNose shall be bound to purchase [***] percent ([***]%) of Product ordered against such Purchase Order.

2.9 Non- or late Deliveries. In the event that CPL is unable to provide Delivery of the Product on or before a date of Delivery specified in the applicable Purchase Order, CPL shall notify OptiNose of such delay and provide the revised date for Delivery. If CPL fails to Deliver the Product in the quantities ordered in any accepted Purchase Order within [***] ([***]) business days of the date specified in such Purchase Order, for reasons other than Force Majeure, then in addition to, and without waiver or limitation of any of its other rights hereunder, at law or in equity, OptiNose shall be entitled to a discount of [***] percent ([***]%) off the price of the late-delivered Product for each week that Delivery is delayed (retroactive to the first day of such delay) up to a maximum discount of [***] percent ([***]%). The adjusted price for the Product shall be reflected by CPL in its invoice. However, if CPL fails, for any reason other than Force Majeure lasting more than [***] ([***]) calendar days, to Deliver Product pursuant to an accepted Purchase Order in accordance with its terms, in addition to, and without waiver or limitation of any of its other rights hereunder, at law or in equity, such failure shall constitute a Supply Failure pursuant to Section 2.11, and OptiNose may elect to cancel such Purchase Order and order the Product from the unfulfilled Purchase Order from a Back-up Supplier, as provided in Section 2.11 below.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

2.10 Back-up Supplier due to Supply Failure. In the event of a Supply Failure as set forth in subsection 2.11 below, at the option of OptiNose, CPL shall [***] (but in no event later than [***] ([***]) days after notice from OptiNose) transfer to OptiNose or a Back-Up Supplier all of the processes, protocols, procedures, methods and tests relating to the Manufacture of Product in accordance with the Specifications and Applicable Law pursuant to the terms set forth in Section 2.1(a), plus provide any technical assistance to OptiNose or the Back-Up Supplier that is reasonably necessary for OptiNose or the Back-Up Supplier to Manufacture Product during the Supply Failure.

2.11 Supply Failure. In the event that:

(i) the Facility fails an inspection or suffers a hold or disciplinary action by the FDA or any other government authority that prevents CPL from Delivering Product and CPL fails to cure such inspection shortcoming, or remove or resolve such hold or disciplinary action in such a manner that the Facility passes re-inspection by the FDA or applicable government authority and/or is free of the hold or disciplinary action, in good standing with FDA or such other applicable government authority, and is lawfully able to and does resume timely and conforming manufacture and delivery of OptiNose's Product requirements in accordance with this Agreement within [***] ([***]) days of such original inspection, or imposition of the hold or disciplinary action;

(ii) CPL materially breaches obligations or requirements under this Agreement related to the Manufacture and Delivery of the Product as set forth herein and fails to cure such breach within [***] ([***]) days of notice thereof by OptiNose, provided, however, that such [***] ([***]) day cure period shall be extended by up to an additional [***] ([***]) days if such breach is reasonably curable within such period and if CPL is diligently working to cure such breach as soon as practicable;

(iii) a Force Majeure preventing CPL from effecting timely Manufacture and/or Delivery of OptiNose's requirements of Product endures, or CPL cannot provide prompt written assurance upon OptiNose's reasonable written request that CPL can effect timely Manufacture and/or Delivery for more than [***] ([***]) days after such request, or

(iv) this Agreement is terminated by OptiNose pursuant to Section 11.3,

(each of (i) — (iv), a "Supply Failure"), OptiNose shall be relieved of its obligation to obtain any Product from CPL under this Agreement and shall be entitled to instead obtain Product from the Back-up Supplier, provided, that upon subsequent timely cure by CPL of a Supply Failure described in subsections (i), (ii) or (iii) above, OptiNose shall within [***] ([***]) days of such cure resume ordering the Annual Minimum requirements of Product from CPL, with the Annual Minimum modified from and after such resumption for the remainder of the Term, as provided in the definition of Annual Minimum.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

2.12 Delivery. All Products provided for Delivery by CPL under this Agreement shall be (i) suitably packed by CPL for Delivery in accordance with good commercial practice and instructions provided to CPL by OptiNose with respect to protection of such Product during transportation, (ii) marked for shipment to OptiNose or its distributor, (iii) accompanied by a certificate of analysis, certificate of compliance, import/export documents, and other documents as necessary and appropriate and in accordance with the terms of the Quality Agreement.

2.13 Competitive Products. Provided that in so doing, no Confidential Information or Intellectual Property of OptiNose is in any manner infringed by, or used (including the OptiNose Equipment) or disclosed to anyone, CPL shall have the right to manufacture, package and/or supply products to third parties which may compete with the Product and which may or may not contain the same active ingredient or ingredients as the Product; provided, however, that neither CPL nor any of its Affiliates shall directly or indirectly (whether for itself or a third party), Manufacture, import, export, develop, obtain Regulatory Approval for, or commercialize, market, sell, offer for sale, package or distribute the Product other than as required pursuant to this Agreement (including with respect to any Back-up Supplier or secondary supplier), nor shall CPL or any of its Affiliates directly or indirectly (whether for itself or a third party), develop a generic equivalent to the Product that involves the exhalation delivery of drug product(s) to the nasal cavity. For purposes of clarity, this Section shall not prohibit CPL from manufacturing, packaging or supplying a product that involves the exhalation delivery of any and all drug product(s) to the nasal cavity that has been submitted for regulatory approval or approved for marketing, commercialization or sale by the FDA before CPL's involvement.

ARTICLE 3
OPTINOSE EQUIPMENT

3.1 OptiNose Equipment; Bailment Agreements. OptiNose and CPL have entered that certain Bailment Agreement with respect to the OptiNose Equipment which is attached hereto in Exhibit C. The Parties hereby agree that the term OptiNose Equipment as used in the Bailment Agreement will include both the items described on Schedule A to the Bailment Agreement and the items described on Schedule 1 hereto. The Parties further agree that the term of the Bailment Agreement shall be co-terminus with the termination of this Agreement. Any additional OptiNose equipment not covered by the Bailment Agreement shall be added to Schedule A to the Bailment Agreement.

ARTICLE 4
PRICES AND PAYMENT

4.1 Price and Continuous Efficiencies Pass Through.

4.1.1 Price. OptiNose shall pay CPL the unit price set forth in Exhibit B for all Product Manufactured by CPL ("Purchase Price"). The Parties expressly acknowledge and agree that the unit pricing specified in Exhibit B is predicated upon the batch size designated therein. If a smaller or larger batch size is requested by OptiNose, prior to the Manufacture of such smaller or larger batch size, CPL shall advise OptiNose of the proposed adjustment to the Purchase Price, as applicable, to reflect the [***] impact of the batch size change, including the reasons for the

adjustment, including but not limited to process and/or packaging validation, claimed to be applicable. The Parties shall agree on such adjusted Purchase Price prior to the Manufacture of such smaller or larger batch size. The Parties also acknowledge and agree that the entire batch will be filled into a single Stock Keeping Unit ("SKU") and should OptiNose request that a batch be split into two or more SKUs, CPL shall issue a revised unit price based on a line change over fee, such fee to be agreed upon by the Parties prior to implementation. The maximum number of splits in any particular batch is [***] ([***]).

4.1.2 Waste Factor Price Adjustment. After the Final Approval Date and provided that CPL has Manufactured the first [***] ([***]) batches of commercial quantities of the Product, the Parties will agree upon maximum waste factors for Raw Materials, and the Parties will agree upon an equitable adjustment of the Purchase Price to reflect the results of and learnings from Manufacture of such batches.

4.1.3 Cost Reduction Plan**.** The Parties shall meet from time to time, but no less than [***] annually, to seek initiatives to improve quality of the Product and/or to reduce material, labor and other costs, and the Parties shall work reasonably after such meeting to implement such initiatives. For each such initiative, the following shall be subject to mutual agreement: the capital and expense to implement the initiative, the Party to provide funds for such capital and expense, the expected cost savings to result, and an equitable sharing of the cost and other benefits from the initiative after recoupment of the funds provided for the initiative (which sharing shall take into account a reasonable return on investment for the party providing the funds to implement such initiative).

4.1.4 Raw Material Price Increase. Upon advance written notice to OptiNose in each instance, CPL shall be entitled to an immediate adjustment to the unit price for a Product by the amount of the increase in Raw Materials cost where any increase in Raw Material costs increase the total unit price for the Product by [***] percent ([***]%) or more. CPL shall provide sufficient documentation to support any unit price adjustment in accordance with this Section.

4.1.5 Annual Price Adjustment. During the Term of this Agreement after [***], the unit price of each Product shall be increased or decreased, which adjustment shall become effective on January 1 of the subsequent calendar year by (a) the change in the cost of Raw Materials; provided, however, that any such change will not include the amount of any price change already implemented under Section 4.1.4 of this Agreement and (b) the actual change in CPL's labor and overhead costs as consistently applied to all products manufactured by CPL incurred over the prior [***] ([***]) month period ("Conversion Cost"); provided, however, that if such change in the labor and overhead is an increase, the percent change may not exceed the percentage increase over the prior [***] ([***]) month period in the Pharmaceutical Producer Price Index Pharmaceutical Preparation Manufacturing Ref. No. pcu325412325412 ("PPI") as reported by the United States Department of Labor Bureau of Labor Statistics.

4.1.6 [***]. Beginning on the later of (i) the [***] ([***]) anniversary of this Agreement and (ii) OptiNose having ordered [***] units of Product where a unit is a unit intended for commercial sale in the Territory or sample use in the Territory (provided that at the time such sample unit is ordered, the price payable to CPL for such sample unit is no more than

[***] percent ([***]%) less than the then current price payable to CPL for a unit intended for commercial sale, such sample unit herein called a "Qualified Sample Unit") under this Agreement and so long as OptiNose pays CPL for such units in full (such later date called the "Price Reduction Date"), CPL shall reduce the then current price of a unit of Product by [***] percent ([***]%) and such price shall remain in effect and apply to all purchases of Product in years from and after the Price Reduction Date. For clarity, any price reduction available to OptiNose under this paragraph will not apply to orders for Product placed before the [***] ([***]) Anniversary of this Agreement or prior to an aggregate of [***] commercial units and Qualified Sample Units of Product being ordered and paid for in full under this Agreement.

4.2 Payment Terms. All undisputed amounts payable under this Agreement shall be expressed in United States Dollars and shall be due and payable by OptiNose to CPL within [***] ([***]) days from the date of issuance of CPL's invoice to OptiNose for Product, subject to the terms of this Agreement.

CPL may not issue to OptiNose an invoice for Product until after Delivery of such Product. However, CPL shall not be required to store Product for more than [***] ([***]) business days after Release to Distribution. All invoices shall reference the applicable Purchase Order, be sent to the address specified in the applicable Purchase Order, and state the Purchase Price and unit price for Product in a given shipment, plus any taxes that are applicable pursuant to Section 4.3. All payments shall be made in United States dollars by check to CPL or by wire transfer in accordance with written instructions given by CPL from time to time.

4.3 Taxes; Duty. CPL shall be the importer of record for the the Raw Material identified in Schedule 3, to the extent requested in writing by OptiNose. [***]. If applicable, OptiNose shall provide to CPL any document, certificate, statement or other information reasonably required to be provided to CPL under applicable law in order for CPL not to charge and collect Transfer Taxes in respect of goods and services provided to OptiNose under this agreement, and CPL shall provide such document, certificate, statement or other information as reasonably requested by OptiNose in connection with any Transfer Taxes. Further, the parties will work together [***] to minimize Transfer Taxes, duties and other taxes as allowable under applicable law.

ARTICLE 5
PRODUCT CONFORMITY TO SPECIFICATIONS

5.1 Notification of Defective Product. OptiNose or its designee shall notify CPL within:

- [***] ([***]) calendar days after receiving a shipment of Product at OptiNose's warehouse if it determines that such shipment contains a Quantitative Defect,
- [***] ([***]) calendar days after receiving a shipment of Product at OptiNose's warehouse if it determines that such shipment contains a Patent Defect, and
- [***] ([***]) calendar days after OptiNose becomes aware of a Latent Defect.

OptiNose shall provide CPL a sample of what it alleges contains a Latent Defect or Patent Defect. Subject to compliance with the foregoing notice requirements and the provisions of

Section 5.2, below, OptiNose shall have the right to reject any batch of Product having a Patent or Latent Defect, provided that, in the case of any Latent Defect, notice of the defect by OptiNose must also be made prior to the expiry of such batch of Product, to the extent such defect was then reasonably known or knowable. Any Product that is not rejected within the applicable period shall be deemed accepted by OptiNose, and any shipment with respect to which OptiNose does not notify CPL of a Quantitative Defect within the applicable period shall be deemed accepted by OptiNose.

5.2 Resolution of Defective Product.

(a) Patent Defect or Latent Defect. Subject to, and without waiver or limitation of OptiNose's and/or CPL's rights and remedies hereunder, at law and/or in equity, if OptiNose believes that a Product or shipment has a Patent Defect or Latent Defect, OptiNose shall, at its option, [***]. If CPL does not agree with OptiNose's determination that such Product or shipment has a Latent Defect or Patent Defect, then after [***] to resolve the disagreement, and subject to, and without waiver or limitation of OptiNose's and/or CPL's rights and remedies hereunder, at law and/or in equity, either Party may submit a sample of such Product to a mutually agreed upon independent third party testing laboratory which is an expert in the industry and which will expertly apply the agreed upon testing protocol in order to determine whether the Product constitutes Defective Product. The independent party's results shall be final and binding for purposes of determining whether payment is owed (but not for purposes of any pending or potential product liability litigation which shall be governed by Article 9 hereof). If such results indicate that the Product was Defective Product, then in addition to, and without waiver or limitation of OptiNose's or CPL's rights and remedies hereunder, at law and/or in equity, OptiNose shall be entitled, at its option, to [***]. If the independent party's results indicate the Product was not a Defective Product, OptiNose shall [***]. If the independent party is unable to determine that a Product is Defective Product, [***]. Unless otherwise agreed to by the Parties in writing, the costs associated with testing and review of a Product pursuant to this Section shall be borne by [***]. Notwithstanding anything herein to the contrary, a Product shall be deemed not to be a Defective Product if the alleged defect or subject matter of the alleged defect is related to an error in or failure to properly conduct the Antimicrobial Effectiveness Test, provided that such defect or alleged defect is not due to the negligence or willful misconduct of CPL and CPL otherwise is in compliance with its obligations under this Agreement with respect to such test.

(b) Quantitative Defect. Subject to, and without waiver or limitation of OptiNose's and/or CPL's rights and remedies hereunder, at law and/or in equity, if OptiNose believes that a shipment has a Quantitative Defect, OptiNose shall notify CPL within the applicable period. If CPL agrees with such Quantitative Defect, CPL will promptly and as soon as practicable, and in no event more than [***] ([***]) business days, ship sufficient Product at OptiNose's direction to remedy such Quantitative Defect. If CPL does not agree with OptiNose's determination that such shipment has a Quantitative Defect, then after [***] to resolve the disagreement, and subject to, and without waiver or limitation of OptiNose's and/or CPL's rights and remedies hereunder, at law and/or in equity, CPL may require a mutually agreed upon independent third party to determine whether the shipment had a Quantitative Defect. The independent party's results shall be final and binding for purposes of determining whether CPL is obligated to ship

additional Product, [***]. If such results indicate that the shipment had a Quantitative Defect Product, then in addition to, and without waiver or limitation of OptiNose's or CPL's rights and remedies hereunder, at law and/or in equity, OptiNose shall be entitled to [***], made by OptiNose for such Product comprising the Quantitative Defect.

ARTICLE 6
RECORDS AND REGULATORY MATTERS

6.1 Batch Records and Data. Within [***] ([***]) business days prior to Delivery of the first and each subsequent batch of each Product, CPL shall provide OptiNose with properly completed and accurate copies of manufacturing work orders, packaging work orders, certificates of analysis, and certificates of compliance, each in the forms attached as Schedule 2, and any other documents properly associated with the Product batch release (for example, without limitation, documents relating to any investigations concerning the batch release) ("Batch Records"). OptiNose shall have [***] ([***]) business days after receipt of all Batch Records to either provide CPL with comments or corrections to be addressed or incorporated in such documents or with a Release to Distribution letter authorizing CPL to provide Delivery of the Product.

6.2 Recordkeeping. CPL shall maintain true and accurate books, records, test and laboratory data, reports and all other information relating to Manufacturing under this Agreement, including all information required to be maintained by all Applicable Laws. Such information shall be maintained for a period of at least [***] from the relevant finished Product expiration date or longer if required under Applicable Laws. CPL shall provide monthly inventory reports of OptiNose Components and all other Raw Material inventoried by CPL solely for the manufacture of Product.

6.3 Regulatory Compliance. Except as provided in the following sentence, OptiNose shall be solely responsible for obtaining and maintaining all permits and licenses required by any Regulatory Authority with respect to the Product, the NDA and any other marketing authorizations in other jurisdictions, as applicable, including any Product licenses, applications and amendments in connection therewith. CPL will be responsible for obtaining and maintaining all permits and licenses required by any Applicable Law with respect to the Facility, its equipment, and the Manufacture and Delivery of the Product. CPL will also maintain the Specifications, subject to Section 2.2.2, in accordance with the written instructions from OptiNose. CPL will Manufacture and provide Delivery of the Product in accordance with the requirements of this Agreement, Specifications and all Applicable Laws. In addition, during the Term of this Agreement, at OptiNose's request and at OptiNose's expense, CPL will reasonably assist OptiNose with all regulatory matters related to Manufacturing under this Agreement. Each Party intends and commits to cooperate to satisfy all Applicable Laws within the scope of its respective responsibilities under this Agreement.

6.4 Regulatory Correspondence. CPL shall notify OptiNose [***]) of any correspondence, any inspections, and the result of any inspection(s) with the FDA or any Regulatory Authority related to the Product. CPL shall send a draft to OptiNose of all correspondence related to the Product that CPL intends to send to any Regulatory Authority. All correspondence with a

Regulatory Authority related to the Product shall be subject to OptiNose's review and comment. OptiNose shall have [***] ([***]) business days to review the draft correspondence and provide its comments. CPL shall, acting reasonably, determine whether to incorporate such comments into the final correspondence. If OptiNose fails to review and/or provide comments to such correspondence within [***] ([***]) business days, OptiNose shall be deemed to have no comments to the correspondence. In no event shall OptiNose cause CPL to be late in responding to any Regulatory Authority. With respect to all correspondence and reports provided to OptiNose pursuant to this Section 6.4, CPL shall be entitled to redact any information that is specific to its customers other than OptiNose and is not directly related to the Product, and OptiNose agrees that such correspondence and reports shall constitute Confidential Information of CPL.

6.5 Governmental Inspections and Requests. CPL and OptiNose shall as soon as reasonably practicable (on the same day as receipt of notice of same, where feasible, but in no event more than within [***] of receipt of notice) inform each other in writing of any inspection, application for inspection, and other regulatory action, by any regulatory agency substantially relating to the Product or the manufacture of Product and/or, in the case of the Facility, substantially related to CPL's manufacturing, packaging, testing and storage of the Product, so that the other party has as much advance notice as reasonably possible to enable it to, as applicable and relevant, participate in preparation and/or strategy regarding and/or attend the inspection. Each Party will permit the other's representatives to be present during any such inspection related directly to the Product, and in the case of OptiNose, CPL will also permit it to be present at any inspection of the Facility to the extent such inspection is directly related to CPL's manufacturing, packaging, testing or storage of the Product, provided that in such case, it is understood and agreed by OptiNose that all communication with the Regulatory Authority shall be directly between CPL and the Regulatory Authority unless the FDA requests to communicate with OptiNose. Each Party will provide the other with the results of all regulatory inspection or audits directly related to the Product within [***] ([***]) business days after such Party's receipt of such results.

6.6 Recall. In the event CPL believes a recall, field alert, Product withdrawal or field correction may be necessary with respect to any Product provided under this Agreement, CPL shall as soon [***] (but in no event more than [***] after forming such belief) notify OptiNose in writing. CPL will not act to initiate a recall, field alert, Product withdrawal or field correction. In the event OptiNose believes a recall, field alert, Product withdrawal or field correction may be necessary with respect to any Product provided under this Agreement, OptiNose shall immediately notify CPL in writing and CPL shall provide all [***] necessary cooperation and assistance to OptiNose. [***] any recall, field alert, Product withdrawal or field correction, and any assistance in connection therewith, shall be borne by [***], provided that [***] shall be obligated to [***] for [***] of a recall, field alert, Product withdrawal or field correction costs incurred by [***] to the extent such recall, field alert, Product withdrawal or field correction is caused by [***]'s breach of its representations, warranties, or obligations under this Agreement [***], Applicable Laws or [***]'s gross negligence or willful misconduct. For purposes of this Agreement, [***] shall be limited to, as applicable, [***]. For avoidance of doubt, OptiNose shall have the ultimate and final authority to initiate a recall.

6.7 Inspections and Audits by OptiNose. Representatives of OptiNose shall have access to each Facility with reasonable notice, as more particularly described below, for the purpose of: (a) conducting inspections of such Facility and CPL's maintenance and usage of the equipment utilized in the Manufacture of the Products, (b) performing quality control audits or (c) witnessing the Manufacture, storage of the Products or the Raw Materials related to

or used in the Manufacture of the Products. OptiNose shall have access to the results of any tests performed by CPL relating to Products and the Raw Materials that CPL purchases directly from a third party in the Manufacture of the Product. CPL shall endeavor (without the payment of any additional fees) to ensure that OptiNose has similar access to the facilities, data and records of CPL's agents and suppliers. Further, CPL will make available to OptiNose any audit reports from audits that CPL conducts, or has conducted, regarding such third parties. Such inspections do not relieve CPL of any of its obligations under this Agreement or create new obligations on the part of OptiNose. This right of inspection, audit and witnessing can be exercised [***] (and as often as necessary for cause), subject to a written notice to CPL given at least [***] prior to the inspection, or at any time or more frequently for cause. CPL shall permit such inspection during normal business hours at reasonable and mutually acceptable times. At all times, OptiNose's representatives shall be accompanied by CPL personnel and follow all site environmental health and safety policies of CPL. Each inspection, audit and witnessing shall be subject, at all times, to CPL's confidentiality and non-disclosure obligations to its other third party customers.

ARTICLE 7
REPRESENTATIONS AND WARRANTIES

7.1 CPL. CPL hereby represents, warrants and covenants to OptiNose that:

7.1.1 At the time of each Delivery of the Product as provided in Article 2, such Product and its corresponding Raw Materials will conform to the Specifications, and such Product shall have been manufactured, assembled, packaged, labeled, tested and Delivered in accordance with all Applicable Laws, including without limitation, cGMP and shall be free of any Latent, Patent or Quantitative Defect;

7.1.2 The Product shall not, at the time of Delivery to OptiNose, contain any material or be manufactured, handled or stored in any way that would cause the Product to be adulterated in any way within the meaning of Section 501, or misbranded within the meaning of Section 502, of the FD&C Act, as amended from time to time;

7.1.3 As of the Effective Date and at all times during the Term, CPL and the Facility and all equipment utilized in the Manufacture of the Product is and will be in compliance with all Applicable Laws;

7.1.4 At all times during the Term, CPL shall obtain OptiNose's written approval for the use of any third party contract laboratory for the testing and release of Product, shall be responsible to ensure that any such contractor is bound to and fully complies with all applicable terms and conditions of this Agreement, including but not limited to those respecting

Confidentiality and Intellectual Property, the Specifications and the requirements of all Applicable Laws;

7.1.5 CPL and its Affiliates covenant not to challenge, or assist any third party in any challenge of, the validity or enforceability of any of OptiNose's Intellectual Property Rights, including any claim of OptiNose's patents related to the Product, in any context, in any court or forum in the Territory, including but not limited to, any judicial, agency or USPTO proceeding (including reexamination proceedings) and/or any efforts to initiate a declaratory judgment action with respect to any of the patents;

7.1.6 To the best of its knowledge, information and belief, CPL warrants, represents and agrees that neither CPL nor any of its employees has ever been: (a) debarred under Section 306 (a) or (b) of the Generic Drug Enforcement Act of 1992, (Article 306(a) or (b)); or (b) (i) convicted of a crime for which a person can be debarred, (ii) threatened to be debarred or (iii) indicted for a crime or otherwise engaged in conduct for which a person can be debarred, in each case under Section 306 (a) or (b), provided, it is understood and agreed that the foregoing representations, warranties and agreements contained in this Section, the use of the phrase "to the best of its knowledge" means that CPL has made appropriate inquiries of its employees and has conducted searches of the FDA Debarment List (available at: http://www.fda.gov/ICECI/EnforcementActions/FDADebarmentList/ucm2005408.htm), the U.S. Department of Health & Human Services Office of Inspector General Exclusions Database (available at: https://exclusions.oig.hhs.gov), the U.S. Federal Government System for Award Management Records (available at: https://www.sam.gov) and http://www.ustreas.gov/offices/enforcement/ofac/ maintained by the U.S. Treasury Department's Office of Foreign Assets Control and as a result thereof no information has come to CPL's attention which contradicts or is inconsistent with such facts or circumstances. OptiNose acknowledges and agrees that CPL shall be entitled to assume the accuracy, currency and completeness of the records, indices and filing systems maintained at the public offices where such searches are conducted and the information and advice provided to CPL by appropriate government, regulatory or other like officials with respect to such matters, and CPL's reliance on such assumption shall be full compliance with CPL's obligations under this Section. CPL agrees to immediately notify OptiNose should any Regulatory Authority threaten any action that could possibly result in a breach of this Section;

7.1.7 CPL's Manufacture of the Product shall be in accordance with the Specifications and Product will be made, stored, packaged, labeled, tested, controlled, Delivered by CPL in accordance with all Applicable Laws;

7.1.8 CPL shall review and approve all in-process and finished Product test results to ensure conformity of such results with the Specifications;

7.1.9 The certificate of analysis and certificate of compliance, which will accompany each shipment of Product, shall be accurate, truthful and made in good faith; and

7.1.10 CPL will comply with all Applicable Laws in the performance of its obligations under this Agreement.

7.2 OptiNose. OptiNose hereby represents, warrants and covenants to CPL that:

7.2.1 The Specifications conform to all Applicable Laws, and during the Term, OptiNose will inform CPL of any changes in Applicable Laws that are a Required Change pursuant to Section 2.2.2;

7.2.2 OptiNose will comply with all Applicable Laws in the performance of its obligations under this Agreement and its use of any materials or Product provided by CPL under this Agreement;

7.2.3 OptiNose has all necessary authority and has requisite rights to OptiNose's Intellectual Property to be used with respect to each Product and any Purchase Order under this Agreement; and

7.2.4 To the best of OptiNose's current knowledge, information and belief, CPL's use, in accordance with the terms of this Agreement, of OptiNose's Intellectual Property, Confidential Information or other proprietary information of OptiNose, or materials supplied by OptiNose to CPL, in the manufacture, packaging, assembly, testing, Delivery, importing, exporting of Product or any other service provided by CPL hereunder, does not infringe or misappropriate the Intellectual Property rights of any third party.

7.3 Mutual. Each Party hereby represents, warrants and covenants to the other Party that:

7.3.1. Existence and Power. Such Party: (a) is duly organized, validly existing and in good standing under the laws of the state or province in which it is organized, (b) has the power and authority and the legal right to own and operate its property and assets, and to carry on its business as it is now being conducted, and (c) is in compliance with all requirements of Applicable Laws.

7.3.2 Authorization and Enforcement of Obligations. Such Party: (a) has the power and authority and the legal right to enter into this Agreement and to perform its obligations hereunder and (b) has taken all necessary action on its part to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder;

7.3.3 Execution and Delivery. This Agreement has been duly executed and delivered on behalf of such Party, and constitutes a legal, valid, binding obligation, enforceable against such Party in accordance with its terms;

7.3.4 No Consents. All necessary consents, approvals and authorizations of all Regulatory Authorities and other persons required to be obtained by such Party in connection with the Agreement have been obtained; and

7.3.5 No Conflict. The execution and delivery of this Agreement and the performance of such Party's obligations hereunder: (a) do not conflict with or violate any requirement of

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Applicable Laws; and (b) do not materially conflict with, or constitute a material default or require any consent under, any current contractual obligation of such Party.

7.4 Disclaimer. EXCEPT AS PROVIDED IN THIS AGREEMENT, NEITHER PARTY MAKES ANY REPRESENTATIONS, WARRANTIES OR CONDITIONS (EXPRESS, IMPLIED, STATUTORY OR OTHERWISE) WITH RESPECT TO THE SUBJECT MATTER HEREOF AND EACH PARTY EXPRESSLY DISCLAIMS ANY SUCH ADDITIONAL REPRESENTATIONS, WARRANTIES OR CONDITIONS.

ARTICLE 8
CONFIDENTIAL INFORMATION AND INTELLECTUAL PROPERTY

8.1 Mutual Obligation. CPL and OptiNose agree that they will not use or disclose the other Party's Confidential Information (defined below) to any third party without the prior written consent of the other Party except as required by law, regulation or court or administrative order; provided, however, that prior to making any such legally required disclosure, the Party making such disclosure shall give the other Party as much prior notice of the requirement for and contents of such disclosure as is practicable under the circumstances and cooperate with the [***] of such party to obtain an appropriate protective order. Notwithstanding the foregoing, each Party may disclose the other Party's Confidential Information as necessary to fulfill its obligations under this Agreement to the extent the recipients of the Confidential Information: (a) need to know such Confidential Information for the purpose of performing under this Agreement, (b) are advised of the contents of this Article, and (c) agree in a signed writing to be bound by the terms of this Article.

8.2 Definition. As used in this Agreement, the term "Confidential Information" includes all information related to the Product furnished by CPL or OptiNose, or any of their respective representatives or Affiliates, to the other or its representatives or Affiliates, whether furnished before, on or after the date of this Agreement and furnished in any form, including but not limited to written, verbal, visual, electronic or in any other media or manner. Confidential Information includes all products, raw materials, components, specifications, formulae, reports, methods, drawings, tools, models, proprietary technologies whether commercial or developmental, Intellectual Property (including, but not limited to inventions, patents, patent applications, patent disclosures, trademarks, copyrights and know-how), regulatory, manufacturing, quality control or assurance, clinical, R&D, human resources, and/or compliance information, data or materials, analyses, compilations, business (including, but not limited to corporate structure, financial, accounting, strategy, plans, documents, contracts, practices, policies and procedures, software, tax, customer, supplier, marketing, sales, forecasting, distribution and/or shipping information, materials or data) or technical information, data and other materials prepared by either Party, or any of their respective representatives, containing or based in whole or in part on any such information furnished by the other Party or its representatives. Confidential Information also includes the existence of this Agreement and its terms, as well as the Confidentiality Agreement signed as of June 26, 2013, which is hereby made a part of this Agreement and attached hereto at Exhibit D.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

8.3 Exclusions. Notwithstanding Section 8.2, Confidential Information does not include information that: (a) is or becomes generally available to the public or within the industry to which such information relates other than as a result of a breach of this Agreement, or (b) is already known by the receiving Party at the time of disclosure as evidenced by the receiving Party's written records, or (c) becomes available to the receiving Party on a non-confidential basis from a source that is entitled to disclose it on a non-confidential basis, or (d) was or is independently developed or discovered by or for the receiving Party without reference to the Confidential Information, as evidenced by the receiving Party's written records.

8.4 Return of Confidential Information. Upon termination of this Agreement, the receiving Party shall, upon request, promptly return within [***] ([***]) days all such Confidential Information, including any copies thereof, and cease its use or, at the request of the disclosing Party, shall promptly destroy the same and certify such destruction to the disclosing Party; except for a single copy thereof, which may be retained for the sole purpose of complying with the scope of the obligations incurred under this Agreement.

8.5 Intellectual Property Rights and Disclosure and Ownership of Results**.**

8.5.1 All right, title and interest in and to, and ownership of and/or Intellectual Property rights in and to the Product, the Specifications, the Regulatory Approval, the Manufacture, marketing, sale, offer for sale, import, export, components, testing, assembly, packaging and distribution of the Product is and at all times remains in OptiNose hereunder and nothing in this Agreement shall operate or be construed so as to grant any license or convey to or confer upon CPL, whether expressly or by implication, any such rights to other than such limited, nonexclusive license (without right to sublicense) as is necessary to permit CPL to Manufacture the Product and provide the Manufacturing to OptiNose on the terms and conditions of and for the periods and limited purposes contemplated in this Agreement.

8.5.2 Moreover, CPL shall promptly and fully disclose to OptiNose in writing all findings, data, results, and conclusions and all inventions, discoveries, trade secrets, techniques, processes, materials, know-how, trademarks, copyrights and other intellectual property rights related thereto, that are prepared, made or discovered by CPL, either alone or with others, directly related to the performance of, or in connection with, the Manufacturing or which result, to any extent, from the use of OptiNose Confidential Information, data, materials, Intellectual Property, Specifications, Regulatory Approval or other OptiNose property, during the Term (collectively, "Inventions"). In consideration of the promises made hereunder by OptiNose to CPL, OptiNose shall own all rights, title and interest in and to all Inventions, including, without limitation, all Intellectual Property regarding formulation with respect to the Product, except to the extent constituting improvements to CPL's then pre-existing Intellectual Property (the "CPL Manufacturing Improvements"). CPL will own all rights, title and interest in and to the CPL Manufacturing Improvements and hereby grants to OptiNose, in consideration of the promises made hereunder, a perpetual, non-terminable, worldwide, royalty-free, transferable and sublicensable (through multiple tiers) non-exclusive license to use the CPL Manufacturing Improvements for any purpose related to OptiNose or its transferees, successors and/or assignees products and services. CPL hereby assigns, transfers and conveys all of their right, title and interest in and to any and all Inventions, other than the CPL Manufacturing Improvements, to

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

OptiNose. Any materials (including the information contained therein) produced by CPL for OptiNose pursuant to the terms of this Agreement shall be the sole and exclusive property of OptiNose. OptiNose hereby grants to CPL a royalty-free, non-transferable, non-exclusive license to use any Inventions solely to the extent and for the duration necessary to enable CPL to perform its obligations hereunder. CPL shall not acquire any other right, title or interest in or to the Inventions as a result of its performance hereunder.

8.5.3 All materials subject to copyright protection prepared by or on behalf of CPL to the extent related to the performance of the Manufacturing, or to the extent that they relate to or involve the use of Confidential Information of OptiNose, shall be "works made for hire," the entire right, title and interest of which shall vest and reside in OptiNose. To the extent any such works prepared by or on behalf of CPL that are directly related to the performance of the Manufacturing hereunder, or that relate to or involve the use of Confidential Information of OptiNose, may not be interpreted as "works made for hire," such works shall be subject to CPL's granting to OptiNose an exclusive, non-royalty bearing, perpetual, non-terminable, worldwide, royalty-free license, with the right to assign and/or sub-license (including through multiple tiers) such works. OptiNose shall have the right to use all materials and other works subject to copyright protection prepared by or on behalf of CPL directly related to the performance of the Manufacturing, and CPL hereby grants to OptiNose, in consideration of the payments made hereunder, a perpetual, non-terminable, worldwide, royalty-free, transferable and sublicensable (through multiple tiers) non-exclusive license to use such materials for any purpose related to OptiNose or its transferees, successors and/or assignees products and services.

8.5.4 Upon the request and at the expense of OptiNose, CPL will execute and deliver any and all instruments and documents and take such other acts as may be necessary or desirable to document such transfer or to enable OptiNose or its affiliates to prepare, file, apply for, prosecute, enforce and maintain patents, trademark registrations or copyrights.

8.5.5 For clarification, except as specifically provided herein all Intellectual Property rights and know-how owned by each Party before the Effective Date of this Agreement remain the property of the said Party.

8.6 Survival. The obligations of this Article 8 shall at all times survive the expiration or sooner termination of the term of this Agreement.

ARTICLE 9
INDEMNIFICATION

9.1 Indemnification by CPL. CPL shall defend, indemnify and hold harmless OptiNose, its Affiliates, and their respective directors, officers, employees and agents ("OptiNose Indemnitees") from and against any and all suits, claims, losses, demands, liabilities, damages, costs and expenses (including reasonable attorneys' fees) in connection with any suit, demand or action by any third party ("Losses") arising out of or resulting from: (a) any breach of its representations, warranties or obligations set forth in this Agreement; (b) any violation of Applicable Laws by CPL in the performance of its obligations set forth on this Agreement, (c) any negligence or willful misconduct by CPL, or (d) any claim, suit or action alleging that the services provided by CPL, or the entities or persons for whom it is in responsible in law or under this Agreement, hereunder infringe any Intellectual Property of any third party, except to the extent such Losses are within the scope of the indemnification obligation of OptiNose under Section 9.2. CPL's obligation to OptiNose Indemnitees under this

Section shall not be limited or obviated by any acceptance of Product with a Latent Defect under Article 5 of this Agreement; provided, however, either that (i) OptiNose provides timely notice to CPL of such Latent Defect or (ii) CPL is not substantially prejudiced by any lack of timely notice.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

9.2 Indemnification by OptiNose. OptiNose shall defend, indemnify and hold harmless CPL, its Affiliates, and their respective directors, officers, employees and agents ("CPL Indemnitees") from and against all Losses arising out of or resulting from: (a) any breach of its representations, warranties or obligations set forth in this Agreement; (b) a violation of Applicable Laws; (c) any negligence or willful misconduct by OptiNose; (d) any claim, suit or action alleging that the filing of an NDA or other attempt to obtain marketing authorization for the Product, or that CPL's use, in accordance with the terms of this Agreement, of OptiNose's Intellectual Property, Confidential Information or other proprietary information of OptiNose, or materials supplied by OptiNose to CPL or Manufacture in accordance with the Specifications, infringes any Intellectual Property rights of any third party, except in each case to the extent that such Losses are within the scope of the indemnification obligation of CPL under Section 9.1; or (e) arising out of the promotion, distribution, use or sale of the Product, including without limitation, any claims, express, implied or statutory, made as to the efficacy, safety or use made or to be made, of the Product, which indemnification obligation under this clause (e) shall not apply where it is determined that the Losses arise from the negligence or willful misconduct of CPL including, but not limited to, its Delivery of Defective Product or CPL's breach of its representations, warranties or agreements herein.

9.3 Indemnification Procedures. All indemnification obligations in this Agreement are conditioned upon the Party seeking indemnification: (a) promptly notifying the indemnifying Party of any claim or liability of which the Party seeking indemnification becomes aware (including a copy of any related complaint, summons, notice or other instrument); provided, however, that failure to provide such notice within a reasonable period of time shall not relieve the indemnifying Party of any of its obligations hereunder except to the extent the indemnifying Party is prejudiced by such failure; (b) cooperating with the indemnifying Party in the defense of any such claim or liability; and (c) not compromising or settling any claim or liability without prior written consent of the indemnifying Party provided, such consent shall not be unreasonably withheld where the compromise or settlement: (w) provide for the unconditional release of the Party seeking indemnification; (x) require the payment of compensatory monetary damages by the indemnifying Party only; (y) requires no requirement whatsoever for the indemnified party to either take any action or to avoid any action whether as a matter of injunctive relief, court order, or any other form; and (z) expressly state that neither the fact of settlement nor the settlement agreement shall constitute, or be construed or interpreted as, an admission by the Party seeking indemnification of any issue, fact, allegation or any other aspect of the claim being settled. In all other cases, the Party seeking indemnification and the indemnifying Party must agree to enter into any proposed settlement. The indemnifying Party shall be entitled to control the defense of any claim or liability for which indemnification is sought hereunder and under such circumstances, the indemnified Party shall not be entitled to be indemnified for attorney fees in connection with such claim or liability; provided that the indemnified Party shall be entitled at its own expense to participate in the defense of such claim or liability with its own counsel and at its own expense.

ARTICLE 10
INSURANCE

10.1 CPL Insurance. CPL shall, at its own cost and expense, obtain and maintain in full force and effect the following insurance during the Term of this Agreement: (a) Commercial General Liability Insurance, (b) Product Liability Insurance and Completed Operations Liability Insurance, and (c) Professional Liability and/or Errors and Omissions Liability Insurance, in each case with per-occurrence and general aggregate limits of not less than $[***], and from and after the date of first commercial sale of a Product, of not less than $[***]. This requirement may be satisfied through the use of an umbrella policy. Additionally, CPL shall, at its own cost and expense, obtain and maintain in full force and effect, Worker's Compensation Insurance with employer's liability limits no less than $[***]. In the event that any of the required policies of insurance are written on a claims made basis, then such policies shall be maintained during the entire Term of this Agreement and for a period of not less than [***] following the termination or expiration of this Agreement. CPL's policies shall be specifically endorsed to include OptiNose as an Additional Insured. CPL shall supply OptiNose with the above proof of insurance and forms as required upon request.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

10.2 OptiNose Insurance. OptiNose shall, at its own cost and expense, obtain and maintain in full force and effect the following insurance during the Term of this Agreement: (a) Commercial General Liability Insurance, and (b) Product Liability Insurance and Completed Operations Liability Insurance, in each case with per-occurrence and general aggregate limits of not less than $[***], and from and after the date of first commercial sale of a Product, of not less than $[***]. This requirement may be satisfied through the use of an umbrella policy. In the event that any of the required policies of insurance are written on a claims made basis, then such policies shall be maintained during the entire term of this Agreement and for a period of not less than [***] following the termination or expiration of this Agreement. OptiNose's policies shall be specifically endorsed to include CPL as an Additional Insured. OptiNose shall supply CPL with the above proof of insurance and forms as required upon request.

ARTICLE 11
TERM AND TERMINATION

11.1 Term of Agreement. The Term of this Agreement shall commence as of the Effective Date and shall remain in effect for a period of five (5) years from when OptiNose provides a Purchase Order for validation batches, unless sooner terminated by mutual consent or pursuant to this Agreement ("Initial Term"). Thereafter, this Agreement shall automatically expire at the end of the Initial Term unless at least [***] before the end of the Initial Term the Parties agree in writing to renew for a renewal term of [***] on terms and conditions to be mutually agreed upon (the "Renewal Term"). Any renewal of a Renewal Term shall be subject to the Parties agreeing in writing at least [***] before the expiry of the then current Renewal Term to renew for a further renewal term of [***] on terms and conditions to be mutually agreed upon.

11.2 Default. If either Party at any time commits a material breach of the provisions of this Agreement, the Bailment Agreement or the Quality Agreement, the other Party shall have the right to terminate this Agreement upon [***] ([***]) days written notice, whereupon this Agreement shall

terminate, unless the breach complained of is cured within the said notice period or if the breach cannot, using [***], be cured within such [***] ([***]) day period but is reasonably expected to be cured within an additional [***] ([***]) day period, and the Party in default has promptly commenced to cure such breach within such [***] ([***]) day period and exercises [***] to effect such cure as soon as is reasonably practicable in the circumstances, and in any event such breach is cured within such additional [***] ([***]) day period. Notwithstanding the foregoing, should CPL have [***] ([***]) or more material breaches during a consecutive [***] ([***]) month period (even if subsequently cured), OptiNose shall have the right thereafter to terminate this Agreement by providing CPL written notice within [***] from the date of such third material breach, which termination shall be no less than [***] ([***]) days from the date of the notice.

11.3 Bankruptcy or Insolvency. If either Party shall (a) become bankrupt or insolvent, (b) file for petition therefore, (c) make an assignment for the benefit of creditors, or (d) have a receiver appointed for its assets, which appointment shall not be vacated within [***] ([***]) days after the filing, then the other Party shall be entitled to terminate this Agreement forthwith by written notice to such Party.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

11.4 Termination by OptiNose. OptiNose shall have the right to terminate this Agreement immediately upon written notice if (i) any Intellectual Property of any third party is reasonably alleged by a third party to be infringed, misappropriated or otherwise violated by the Manufacture, import, use, sale or distribution of the Product, (ii) any Regulatory Authority requires OptiNose to cease production or sale of Product(s) or (iii) the liability cap specified in Article 12 is exhausted prior to the end of the Term. OptiNose agrees that in the event it exercises any right to terminate the Agreement pursuant to this Section that [***]. CPL will cooperate with OptiNose to return inventory where applicable and feasible, [***]. It is understood and agreed, however, that where CPL is able to return inventory, [***]. In the event that CPL has not been reimbursed in full by any vendor or by any other third party for any Raw Material, [***]. Subject to and without waiver or limitation of OptiNose's rights and remedies in Section 11.2 above, 11.6 below and elsewhere in this Agreement, at law and/or in equity, [***].

11.5 Force Majeure. Except as to payments required under this Agreement, if any default or delay occurs which prevents or materially impairs a Party's performance and is due to a cause beyond the Party's reasonable control, and provided that the default or delay is not caused by or the fault of such Party, including but not limited to an act of God, flood, fire, explosion, earthquake, casualty, accident, war, revolution, civil commotion, blockade, terrorism or embargo or failure of available supply of raw materials and/or packaging components not reasonably preventable (in each case "Force Majeure"), the affected Party shall promptly notify the other Party in writing of such cause and shall exercise [***] to resume performance under this Agreement as soon as possible. Neither Party will be liable to the other Party for any loss or damage due to such cause, nor will the Term be extended thereby. Either Party may terminate this Agreement because of such default or delay upon not less than [***] ([***]) days' prior written notice to the other Party provided that the default or delay has already existed for [***] at the time of such notice and is continuing at the end of such termination notice period (e.g., the force majeure need not be suffered by the other party for more than [***] ([***]) days).

11.6 Effect of Termination. Expiration or termination of this Agreement on any basis shall be without prejudice to (i) any rights or obligations that accrued to the benefit of either Party prior to such expiration or termination and (ii) any claims, remedies or other rights either Party may have at law, in equity or otherwise pursuant to or in connection with this Agreement. The rights and obligations of the Parties shall continue under Articles 1, 3, 5, 6, 7, 8, 9, and 10, Sections 11.4 and 11.6, Articles 12, 13, and 14 notwithstanding expiration or termination of this Agreement. In addition, any other provision required to interpret and to enforce the parties' rights and obligations under this Agreement shall also survive, but only to the extent required for the observation and performance of the aforementioned surviving portions of this Agreement.

ARTICLE 12
LIMITATIONS OF LIABILITY

EXCEPT WHERE DUE TO THE GROSSLY NEGLIGENT OR WILLFUL BREACH OF ITS OBLIGATIONS HEREUNDER, ANY BREACH OF ARTICLE 8 HEREOF, OR PURSUANT TO ITS INDEMNIFICATION OBLIGATIONS PURSUANT TO ARTICLE 9 (COLLECTIVELY, THE "EQUITABLE EXCEPTIONS"), NEITHER PARTY SHALL BE LIABLE TO THE OTHER PARTY FOR INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THIS AGREEMENT, INCLUDING WITHOUT LIMITATION, LOSS OF REVENUES, PROFITS, DATA, OR BUSINESS OPPORUNITY, WHETHER IN CONTRACT OR TORT, EVEN IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF

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SUCH DAMAGES. NOTWITHSTANDING ANYTHING IN THIS AGREEMENT TO THE CONTRARY, EXCEPT PURSUANT TO THE EQUITABLE EXCEPTIONS, CPL'S LIABILITIES UNDER THIS AGREEMENT SHALL BE LIMITED TO [***].

NOTWITHSTANDING ANYTHING TO THE CONTRARY IN THIS AGREEMENT OR IN THE QUALITY AGREEMENT BETWEEN CPL AND OPTINOSE, IT IS UNDERSTOOD AND AGREED THAT CPL'S LIABILITY FOR ANY AND ALL LOSS OR DAMAGE TO [***] SHALL BE: (I) NO LIABILITY IF CPL HAS MANUFACTURED THE PRODUCT IN ACCORDANCE WITH THE SPECIFICATIONS, QUALITY AGREEMENT AND APPLICABLE LAWS; AND (II) LIMITED TO [***]; PROVIDED HOWEVER, THAT THE LIMITATION IN CLAUSE (II) ABOVE SHALL NOT APPLY IF DUE TO CPL'S GROSS NEGLIGENCE OR WILFUL MISCONDUCT OR THAT OF ANYONE FOR WHOM CPL IS RESPONSIBLE, IN WHICH CASE [***] (SUBJECT TO THE LIMITATION OF LIABILITY SET FORTH IN THE PRECEDING PARAGRAPH).

ARTICLE 13
NOTICE

13.1 Notices. All notices and other communications hereunder ("Notices") shall be in writing and shall be deemed given: (a) when delivered personally; (b) when delivered by facsimile transmission (receipt verified); (c) when received or refused, if mailed by registered or certified mail (return receipt requested), postage prepaid; (d) when delivered if sent by reliable express courier service with a confirmation, to the Parties at the following addresses (or at such other address for a Party as shall be specified by like notice; provided, that notices of a change of address shall be effective only upon receipt thereof**);** or (e) when delivered by email followed up by registered or certified mail, return receipt requested.

To OptiNose US:

OptiNose US, Inc.
1020 Stony Hill Road
Suite 300
Yardley, PA 19067
Attention: Chief Executive Officer

To OptiNose UK:

OptiNose UK, Ltd.
Hunts Rise
South Marston Park, Wiltshire
SN3 4TG, England
Attention: Chief Executive Officer

To OptiNose Norway:

OptiNose AS
Gaustadalleen 21
0349 Oslo, Norway
Attention: Chief Executive Officer

In each instance, with cc to:

OptiNose US, Inc.
1020 Stony Hill Road
Suite 300
Yardley, PA 19067
Attn: Chief Legal Officer

To CPL:

Contract Pharmaceuticals Limited
7600 Danbro Crescent

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Mississauga, Ontario, Canada L5N 6L6
Attention: Ken Paige, Chief Executive Officer
Email: kpaige@cplltd.com

ARTICLE 14
MISCELLANEOUS

14.1 Entire Agreement; Amendments. This Agreement, the Quality Agreement, the Bailment Agreement, and any exhibits, schedules, attachments, and any amendments hereto or thereto, constitute the entire understanding between the Parties with respect to the specific subject matter hereof. No term of this Agreement may be amended except upon written agreement of both Parties, unless otherwise provided in this Agreement.

14.2 Recitals. The recitals are hereby incorporated in and made part of this Agreement.

14.4 Further Assurances. The Parties agree to execute, acknowledge and deliver such further instruments and to take all such other incidental acts as may be reasonably necessary or appropriate to carry out the purpose and intent of this Agreement.

14.5 No Waiver. Failure by either Party to insist upon strict compliance with any term of this Agreement in any one or more instances will not be deemed to be a waiver of its rights to insist upon such strict compliance with respect to any subsequent failure.

14.6 Severability. If any term of this Agreement is declared invalid or unenforceable by a court or other body of competent jurisdiction, the remaining terms of this Agreement will continue in full force and effect to the extent reasonably severable without altering the Parties' original intent. In such case, the Parties shall promptly undertake in good faith to negotiate a valid replacement provision for any such invalidated or severed provision that tracks as nearly as possible the Parties' original intent.

14.7 Independent Contractors. The relationship of the Parties is that of independent contractors, and neither Party will incur any debts or make any commitments for the other Party except to the extent expressly provided in this Agreement. Nothing in this Agreement is intended to create or will be construed as creating between the Parties the relationship of joint ventures, co-partners, employer/employee or principal and agent.

14.8 Successors and Assigns. This Agreement will be binding upon and inure to the benefit of the Parties, their successors and permitted assigns. Neither Party may assign this Agreement, in whole or in part, without the prior written consent of the other Party, except that either Party may, without the other Party's consent, assign this Agreement to an Affiliate or to an acquirer of or a successor to substantially all of the business or assets of the assigning Party. In the case of assignment to an Affiliate, where the assignee is not also the acquirer or successor to substantially all of the business or assets of the assigning Party (a "Permitted Transferee"), the following conditions apply:

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(a) the transferor is not in breach of its obligations under this Agreement;

(b) the Permitted Transferee is, and remains, an Affiliate of the transferor; and

(c) the Permitted Transferee has the reasonable wherewithal to and is reasonably capable of discharging the obligations of the transferor hereunder to the same extent as transferor, and the Permitted Transferee agrees to assume and be bound by and entitled to the benefits and obligations and rights under this Agreement to the extent and with the same effect as if such Permitted Transferee was the original party to this Agreement and the Permitted Transferee and the transferor shall be jointly and severally liable to the other Party for the performance of the Permitted Transferee of the obligations of the transferor contained in this Agreement.

14.9 Prevailing Party. In any dispute resolution proceeding between the Parties in connection with this Agreement, the prevailing Party will be entitled to [***].

14.10 Counterparts. This Agreement may be executed in one or more counterparts, each of which will be deemed an original but all of which together will constitute one and the same instrument. Any photocopy, facsimile or electronic reproduction of the executed Agreement shall constitute an original.

14.11 Publicity. Neither Party will make any press release or other public disclosure regarding this Agreement or the transactions contemplated hereby without the other Party's express prior written consent, except as required under applicable law or by any governmental agency or stock exchange rule or regulation, in which case the Party required to make the press release or public disclosure shall use [***] to obtain the approval of the other Party as to the form, nature and extent of the press release or public disclosure prior to issuing the press release or making the public disclosure.

14.12 Conflicting Terms. To the extent this Agreement and the Quality Agreement have directly conflicting terms, this Agreement shall govern.

14.13 Currency. Wherever a currency is indicated throughout this Agreement, that currency shall be United States Dollars.

14.14 Days. Wherever reference is made to days, working days or any measurement of time in days, business days shall be used, except where calendar days are specified.

14.15 Sophisticated Parties. Each Party to this Agreement is a sophisticated business party negotiating in good faith with the advice of legal counsel.

14.16 English Language. This Agreement has been negotiated and is written in the English language, and the English original shall prevail over any translation hereof.

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14.17 Interpretations. The captions and headings to this Agreement are for convenience only, and are to be of no force or effect in construing or interpreting any of the provisions of this Agreement. Unless specified to the contrary, references to Articles, Sections, Schedules or Exhibits mean the particular Articles, Sections, Schedules or Exhibits to this Agreement and references to this Agreement include all Schedules and Exhibits hereto. Unless context clearly requires otherwise, whenever used in this Agreement: (i) the words "include" or "including" shall be construed as incorporating, also, "but not limited to" or "without limitation;" (ii) the word "or" shall have its inclusive meaning of "and/or;" (iii) the word "notice" shall require notice in writing (whether or not specifically stated) and shall include notices, consents, approvals and other written communications contemplated under this Manufacturing Agreement; (iv) the words "hereof," "herein," "hereunder," "hereby" and derivative or similar words refer to this Agreement (including any Schedules and Exhibits); (v) provisions that require that a Party or the Parties "agree," "consent" or "approve" or the like shall require that such agreement, consent or approval be specific and in writing; (vi) words of any gender include the other gender; (vii) words using the singular or plural number also include the plural or singular number, respectively; and (viii) references to any specific law, or article, section or other division thereof, shall be deemed to include the then-current amendments thereto or any replacement thereof.

14.18 Dispute Resolution. The senior executives of the respective Parties shall use [***] to negotiate in good faith to resolve disputes regarding any right, obligation, duty or liability which may arise between the Parties under this Agreement. Subject to Section 5.2 hereof, in the event that the Parties are unable to resolve such dispute within a reasonable period of time, either party may pursue appropriate legal and equitable relief, as provided by Applicable Law, consistent with Section 14.19, below.

14.19 Governing Law and Venue. This Agreement shall be governed by and construed in accordance with the laws (except for the laws governing choice of law) of and in the state and/or federal courts located within the State of Delaware, U.S.A, wherein jurisdiction and venue over the parties and any dispute shall be exclusively had.

14.20 OptiNose Parties. Notwithstanding anything in this Agreement to the contrary, (i) each of OptiNose US, OptiNose UK and OptiNose Norway shall be and is hereby individually vested with each and every right of OptiNose under this Agreement, (ii) the OptiNose parties shall inform CPL which OptiNose party will be acting under this Agreement (the "Acting OptiNose Party") and thereafter CPL shall be entitled to rely exclusively on instructions from such Acting OptiNose Party until notified by the OptiNose parties that a new Acting OptiNose Party has been so designated, and (iii) each of OptiNose US, OptiNose UK and OptiNose Norway shall be severally, and not jointly, liable or responsible to CPL for any obligations of such party to CPL contained in this Agreement resulting from any actions or inaction by it as the Acting OptiNose Party or as a result of any event or occurrence while it was the Acting OptiNose Party and shall be the sole OptiNose party liable and responsible to CPL for such obligation.

[Signature Page Follows]

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IN WITNESS WHEREOF, the Parties have caused their duly authorized representatives to execute this Agreement.

CONTRACT PHARMACEUTICALS LIMITED CANADA

By: /s/ Jan Sahai

Name: Jan Sahai

Its: VP Business Development

OPTINOSE US, INC.

By: /s/ Peter Miller

Name: Peter Miller

Its: CEO

OPTINOSE UK LTD.

By: /s/ Peter Miller

Name: Peter Miller

Its: CEO

OPTINOSE AS

By: /s/ Peter Miller

Name: Peter Miller

Its: CEO

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EXHIBIT A

PRODUCT SPECIFICATIONS

The Specifications are to be finalized by the Parties using [***] as soon as practicable after the Effective Date for the initial commercial and related sample product for use in the Territory (provided such sample unit is substantially similar to the unit intended for commercial sale), with OptiNose providing its final written approval thereto. The Parties shall work together in good faith to finalize such Specifications for any additional Products set forth in that certain Quotation Version 35 from CPL to OptiNose, dated August 11, 2017.

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EXHIBIT B

PRICE

The Purchase Price shall be as set forth in that certain Quotation Version 35 from CPL to OptiNose, dated August 11, 2017; provided, that the [***] specified therein for Raw Materials procured by OptiNose shall be adjusted once OptiNose's purchase price for such Raw Materials is finalized ([***] and OptiNose shall provide reasonable written, formal documentation of such purchase prices to CPL).

As part of the Purchase Price, pursuant to Section 2.1(d), the Purchase Price shall include the following:

- [***]% of the cost of Raw Materials procured by OptiNose
- [***]% of the cost of Raw Materials procured by CPL

Pursuant to Section 2.1(c), the following costs shall be payable in the event of an Annual Minimum shortfall:

- [***]

· [***]

· [***]

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EXHIBIT C

Bailment Agreements

See attached.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

MASTER BAILMENT AGREEMENT

THIS AGREEMENT is made as of the 24th day of June, 2016,

BETWEEN:

OptiNose US, Inc.,
a corporation incorporated under the laws of the State of Delaware;

(hereinafter referred to as "**OptiNose**")

- and -

Contract Pharmaceuticals Limited Canada
a corporation incorporated under the laws of **[the province of Ontario]**;

(hereinafter referred to as the "**Manufacturer**", OptiNose and Manufacturer, each, a "**Party**" and collectively, the "**Parties**")

RECITALS

1. The Manufacturer carries on the business of development and manufacturing of non-sterile liquid and semi-solid pharmaceutical products in the Province of Ontario.

2. The Manufacturer and OptiNose may become parties to certain contract manufacturing and supply agreements pursuant to which OptiNose would hire the Manufacturer, among other things, to process or otherwise convert various raw materials and packaging components into finished products that incorporate OptiNose's unique and patented Bi-Directional Breath Powered technology platform (the "**Products**"). Any contract manufacturing and supply agreement described above, if and when entered into between the Parties from time to time, as may be amended, modified, supplemented or restated from time to time, shall be referred to herein as, a "**Supply Contract**".

3. OptiNose wishes to deliver or have delivered certain property, machinery and equipment of OptiNose, as forth and described in Schedule "A" hereto (the "**OptiNose Equipment**"), to the Manufacturer from time to time for storage and use by the Manufacturer for the purpose of performing the services prescribed by the Supply Contract for and on behalf of OptiNose in accordance with the terms and conditions set out in the Supply Contract at the facility leased and operated by the Manufacturer and located at 7600 Danbro Crescent, Mississauga, Ontario, Canada L5N 6L6 (the "**Facility**").

4. OptiNose and the Manufacturer wish to confirm the ownership, storage, use and maintenance of the OptiNose Equipment and certain related obligations of the Manufacturer, on the terms and subject to the conditions set forth herein.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

NOW THEREFORE THIS AGREEMENT WITNESSES THAT in consideration of the mutual covenants and agreements herein contained and for other good and valuable consideration (the receipt and sufficiency of which is hereby acknowledged), the Parties agree as follows:

1. **OPTINOSE EQUIPMENT**

1.1 Ownership of OptiNose Equipment. All right, title and interest in and to any and all OptiNose Equipment shall belong exclusively to OptiNose at all times, notwithstanding any storage, changes, transformations to or work performed by the Manufacturer on any part or portion of the OptiNose Equipment.

1.2 No Interest of Manufacturer in the OptiNose Equipment. Nothing in this Agreement shall be construed as granting the Manufacturer any right, title or interest in or to the OptiNose Equipment. To the extent that the Manufacturer or any of its employees, agents or representatives acquires any right, title or interest in the OptiNose Equipment, the Manufacturer shall, and shall cause all such persons to, hold such rights in trust for OptiNose. The Manufacturer hereby assigns, and/or shall cause all such persons to assign, all such rights to OptiNose and shall do all such acts, execute all such documents and provide such further assurances and instruments, from time to time, as may reasonably be required for the foregoing.

1.3 No Encumbrances. The Manufacturer shall not, at any time, create, grant, or suffer to exist, any liens, security interests, charges or other encumbrances whatsoever upon the OptiNose Equipment, other than any liens in favor of OptiNose, OptiNose creditors, and/or the manufacturers of the OptiNose Equipment.

1.4 Restriction on Use. The Manufacturer shall receive and hold the OptiNose Equipment solely for the purpose of performing the services prescribed by and in accordance with the Supply Contract for and on behalf of OptiNose in accordance with the terms and conditions set out in the Supply Contract or other written instructions of OptiNose (the "**Permitted Purpose**"). Notwithstanding the foregoing, the Parties acknowledge and agree that in addition to the Permitted Purpose, the Manufacturer shall have the right to use the OptiNose Equipment, from time to time, to manufacture any other product or products for itself or any one or more third parties, provided: (i) such other product or products are not fluticasone for nasal inhalation obtained by prescription (for clarity, Manufacturer is permitted to use OptiNose Equipment for the manufacture of any and all non-prescription product(s) that contain fluticasclue), and (ii) the manufacture of the Product will have priority over any other use of the OptiNose Equipment including any manufacturing of any other product or products by the Manufacturer for itself or any one or more third parties ("**Other Manufacturing**") provided that such Other Manufacturing has not been scheduled previously. For the avoidance of doubt, OptiNose shall have no liability to the manufacturer in connection with the OptiNose Equipment not being available, for any reason, for such Other Manufacturing The Parties intend to settle and execute the Supply Contract on or before July 31, 2016.

2. **DELIVERY AND STORAGE OF PROPERTY**

2.1 Delivery of OptiNose Equipment. Pursuant to delivery arrangements to be made between OptiNose and the Manufacturer, with assistance and direction from the Manufacturer pursuant

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to Section 3.1 below, OptiNose shall deliver or shall arrange for delivery of the OptiNose Equipment to the Facility for purposes of use in manufacturing by the Manufacturer. Upon receipt of any part or portion of the OptiNose Equipment, the Manufacturer shall deliver to OptiNose by email or facsimile a confirmation of receipt in the form of Exhibit A hereto (or as may otherwise be reasonably acceptable to OptiNose).

2.2 Terms of Storage.

(1) During the term of the to be executed Supply Contract between the Parties, the Manufacturer shall store the OptiNose Equipment at the Facility [***] and no other location without the written authorization of OptiNose. Any storage of the OptiNose Equipment elsewhere by the Manufacturer without written authorization of OptiNose shall be deemed a violation of this Agreement and the Manufacturer shall be liable to OptiNose for any loss or damage to the OptiNose Equipment.

(2) From the time the OptiNose Equipment is delivered to the Facility by or on behalf of OptiNose until such time as the OptiNose Equipment is removed from the Facility by or on behalf of OptiNose pursuant to OptiNose's written authorization, the Manufacturer shall be responsible for any physical damage to, and any physical loss of, the OptiNose Equipment to the extent arising from or relating to the negligence or willful misconduct of the Manufacturer or those for whom the Manufacturer is in law responsible, except to the extent such loss or damage is caused by the negligence or willful misconduct of OptiNose or its agents (which, for the avoidance of doubt, shall not include the Manufacturer or its agents). [***]. Any such replacements shall constitute accessions to the OptiNose Equipment stored by the Manufacturer for OptiNose, and title thereto shall immediately vest and remain in OptiNose.

(3) At all times during the term of this Agreement OptiNose shall, [***], place and maintain special form property insurance on the OptiNose Equipment for its full replacement value, subject to reasonable deductibles. In the event of any physical damage or loss suffered by the OptiNose Equipment, OptiNose agrees to diligently pursue any reasonably available insurance claim with respect to such loss, and that any proceeds thereof may be applied towards repair or replacement of the OptiNose Equipment, and will, net of any deductibles and resulting premium increases, reduce the Manufacturer's liability to OptiNose (if any) related to such loss.

(4) At all times during the term of this Agreement, the OptiNose Equipment will be conspicuously tagged and marked *"Property of OptiNose US, Inc."*

(5) The Manufacturer shall keep and maintain accurate and up-to-date records of the status and other reasonable particulars of the OptiNose Equipment. The Manufacturer shall deliver such records to OptiNose forthwith upon reasonable request, from time to time.

2.3 Records of OptiNose Equipment; No Misleading Representations. The Manufacturer shall keep correct books of account and records in respect of the OptiNose Equipment. Such books of account and records shall be open to inspection by OptiNose or its agents [***] during regular business hours of the Manufacturer upon reasonable advance notice. The Manufacturer

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shall not carry or otherwise account for the OptiNose Equipment as equipment or other property and goods of the Manufacturer, nor shall the Manufacturer perform any acts or make any representations which may cause any of the Manufacturer's creditors, potential creditors, customers or any other third party whatsoever to believe that the Manufacturer is the owner of the OptiNose Equipment.

3. **FURTHER OBLIGATIONS OF MANUFACTURER**

3.1 Equipment Procurement and Installation Services.

(a) The Manufacturer covenants and agrees to select and procure the OptiNose Equipment at a competitive commercial cost for and on behalf of OptiNose. For and on behalf of OptiNose, the Manufacturer shall be responsible for all necessary selection, performance evaluation, contract negotiation, arrangements for shipment and delivery, inspection, customization, modification and installation of the OptiNose Equipment at the Facility including all related communications with the suppliers of the OptiNose Equipment in order to ensure that the OptiNose Equipment meets the needs and objectives of OptiNose in respect of the Manufacturer's manufacturing, assembly, quality testing, inspection and packaging of the Products pursuant to the Supply Contract, including without limitation meeting OptiNose's prescribed timelines for commencement of such activities, provided that any delay in meeting such timelines is not due to the acts or omissions of OptiNose or those for whom the OptiNose is, in law, responsible (which, for the avoidance of doubt, shall not include the Manufacturer or its agents).

(b) All costs associated with the delivery and installation of the OptiNose Equipment, including without limitation, capital investments related to the preparation of the Facility to incorporate the OptiNose Equipment, specifically and without limitation, work related to the installation of the OptiNose Equipment, modification, commissioning and validation of the Facility, computer systems and utilities, up to the amounts set forth on the budget attached hereto as Schedule "B", [***]. Any amounts exceeding the aggregate budget attached hereto as Schedule "B" shall be approved by OptiNose.

3.2 Standard of Care. The Manufacturer shall use the same level of care, skill, prudence and diligence that a prudent person acting in a like capacity and familiar with such matters would use with respect to storage, use and maintenance and repair of the OptiNose Equipment. The Manufacturer shall take all [***] steps necessary or appropriate to protect the OptiNose Equipment from loss or damage.

3.3 Operation and Maintenance of OptiNose Equipment. During the term of this Agreement, the Manufacturer will:

(a) operate and maintain the OptiNose Equipment in a prudent, reasonable, and efficient manner and in accordance with the operating manuals, recommendations, procedures and guidelines and in compliance with the applicable warranty terms and conditions of the vendors or manufacturers of such equipment;

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(b) provide all labour, parts and equipment necessary to inspect, manage, and perform Routine and Preventative Maintenance (where "Routine and Preventative Maintenance" means any task that is performed at a regular predefined interval on the Equipment in accordance with the written instructions of the Equipment manufacturer in order to ensure that the Equipment continues to perform its intended function). Without limiting the generality of the foregoing, [***]. Any and all costs associated with modifications to the Equipment as a result of written instructions from OptiNose and/or a change in specifications of the Product shall be at [***]. OptiNose shall assist the Manufacturer during the term of this Agreement in enforcing any and all warranties, guarantees, service contracts, licenses and representations given to OptiNose by the vendor or a manufacturer or supplier of the OptiNose Equipment with respect to the OptiNose Equipment;

(c) maintain, at the Facility, the operating logs, records, and reports that document the operation and maintenance of the OptiNose Equipment, all in form and substance acceptable to OptiNose, acting reasonably; and

(d) notify and communicate with OptiNose regarding the occurrence or reasonable belief of the imminent occurrence of an unplanned outage of the OptiNose Equipment and take all [***] action to prevent or to mitigate such unplanned outage and minimize any costs associated with repairs that may be required to the OptiNose Equipment.

3.4 Audit and Inspection Rights. OptiNose shall be entitled to conduct audits and/or inspections of the Facility and/or the OptiNose Equipment to ensure that the Manufacturer complies with its duties and obligations under this Agreement [***] during business hours on reasonable, and, if OptiNose will require assistance from the Manufacturer in conducting such audit and/or inspection, not less than [***], and without unreasonably interfering with the Manufacturer's operations. OptiNose personnel and/or its agents shall be accompanied at all times by the Manufacturer's personnel (which shall be made available by the Manufacturer) and shall act in accordance with any reasonable applicable Standard Operating Procedures set out by the Manufacturer. All such audits and/or inspections shall be subject to Manufacturer's confidentiality and non-disclosure obligations to third party customers.

4. **INDEMNITY**

4.1 Indemnity. The Manufacturer shall indemnify and hold harmless OptiNose, its affiliates and their respective directors and officers, employees, agents and representatives (collectively, the "**Releasees**") from and against any and all liability, losses, costs, damages and expenses (including reasonable legal fees) causes of action, actions, claims, demands, lawsuits or other proceedings (collectively, the "**Claims**") by whomever made, sustained, brought or prosecuted, [***], other than [***] to the extent (i) not arising from the negligence and/or willful misconduct of the Manufacturer or those for whom the Manufacturer is in law responsible (which, for the avoidance of doubt, shall not include OptiNose or its agents), or (ii) arising from or relating to the negligence or willful misconduct of OptiNose or those for whom OptiNose is in law responsible (which,

for the avoidance of doubt, shall not include the Manufacturer or its agents). The Manufacturer covenants and agrees with the Releasees not to make claim or cross claim or to take proceedings against any other person, firm, partnership,

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business or company who or which might claim contribution from, or to be indemnified by any of the Releasees, under the provisions of any statute or otherwise.

4.2 Further Indemnity. Without limiting the generality of the foregoing, the Manufacturer shall indemnify the Releasees for the Manufacturer's [***].

4.3 Survival. Notwithstanding any termination of this Agreement, Sections 4 and 5 of this Agreement shall survive and continue without limitation in time.

5. **GENERAL**

5.1 Entire Agreement. This Agreement constitutes the entire agreement between the Parties pertaining to the subject matter hereof and supersedes all prior agreements, understandings, negotiations and discussions, whether oral or written, of the Parties and there are no warranties, representations or other agreements between the Parties in connection with the subject matter hereof except as specifically set forth herein and therein, including work orders delivered pursuant to this Agreement, provided however that the obligations and duties of care of the Manufacturer hereunder are in addition to, and not in substitution for obligations and duties of care of the Manufacturer, as bailee, at law. This Agreement may not be amended or modified in any respect except by written instrument signed by all Parties.

5.2 No Waiver. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provision (whether or not similar) nor shall such waiver constitute a continuing waiver unless otherwise expressly provided.

5.3 Further Assurances. The Parties agree to do or cause to be done all acts or things and to provide such further documents or instruments required to implement and carry into effect this Agreement to its full extent.

5.4 [***]. The Parties intend that title to the OptiNose Equipment held or stored for or on behalf of OptiNose pursuant to this Agreement shall remain in OptiNose at all times and that this Agreement shall be construed as a bailment agreement in all respects. [***].

5.5 Consent of the Manufacturer's Creditors; No Further Liens. The Parties recognize that certain of the Manufacturer's creditors may from time to time hold interests in certain property and assets of the Manufacturer. By execution of this Agreement, the Manufacturer represents and warrants to OptiNose that, except as set forth on Schedule "D", no such secured creditors of the Manufacturer hold currently effective liens or such other security interests on or in the Manufacturer's assets. For so long as any OptiNose Equipment is held or stored by the Manufacturer, if any secured creditor of the Manufacturer (other than OptiNose) hereinafter acquires a lien or security interest on or in any of the Manufacturer's assets after the date hereof, the Manufacturer will promptly (and in advance of the creation of any such lien) notify OptiNose thereof in writing. For so long as any OptiNose Equipment is held or stored by the Manufacturer, the Manufacturer shall obtain and provide to OptiNose the written acknowledgement, in all respects acceptable to OptiNose in its sole discretion, of the existence of this Agreement and the ownership by OptiNose of all of the OptiNose Equipment held or stored by the Manufacturer for or on behalf of OptiNose at the Facility from each such creditor.

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5.6 Repair and Storage Liens Act. The Parties agree that the transactions contemplated by this Agreement shall not create a lien or other encumbrance in the OptiNose Equipment or any part thereof pursuant to the *Repair and Storage Liens Act* (Ontario).

5.7 Severability. If any term, provision, covenant, condition, obligation or agreement of this Agreement, or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable the remainder of this Agreement or the application of such terms, provisions, covenants, conditions, obligations or agreements to persons or circumstances other than those to which it is held invalid or unenforceable shall not be affected, impaired or invalidated thereby and each term, provision, covenant, condition, obligation and agreement of this Agreement shall be separately valid and enforceable to the fullest extent permitted by law.

5.8 Assignment. This Agreement shall enure to the benefit of and be binding upon the Parties hereto and their respective personal representatives, successors (including any successor by reason of amalgamation of any Party) and permitted assigns. This Agreement may be assigned by the Manufacturer only with the prior written consent of OptiNose, such consent not to be unreasonably withheld or delayed. Any purported assignment by the Manufacturer without such consent shall be null, void and of no effect.

5.9 Headings. The insertion of headings herein and the division of this Agreement into sections are for convenience of reference only and shall not affect the interpretation hereof.

5.10 Notices. All notices, documents or other or other communications required or permitted to be given under this Agreement shall be in writing and shall be effectively given if sent by prepaid courier service or registered mail, delivered personally or sent by facsimile transmission or e-mail to the other Party as out forth below.

If to OptiNose:

OptiNose US, Inc.
1010 Stony Hill Road, Suite 375
Yardley PA
USA
19067

Attention: CEO

Email: peter.miller@optinose.com

And to:

Kevin Clayton

Partner, Hogan Lovells US LLP

Columbia Square, 555 Thirteenth Street, NW

Washington, DC 20004

Tel: +1 202 637 5600; Direct: +1 202 637 5489

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Fax: +1 202 637 5910

If to the Manufacturer:

Contract Pharmaceuticals Limited Canada
7600 Danbro Crescent
Mississauga ON
Canada
L5N 6L6

Attention: CEO

Fax: 1 905 821 7601
Email: kpaige@cplltd.com

Any such notice, document or other communication so given or made shall be deemed to have been given or made and to have been received on the day of delivery if delivered personally, or on the day of facsimile transmission or sending by e-mail, provided that such day is not a Saturday or Sunday or a statutory holiday ("**Business Day**") and the communication is so delivered, transmitted by facsimile or sent prior to 4:30 p.m. EST on such day. Otherwise, such communication will be deemed to have been given and made and to have been received on the next Business Day if sent by courier, personal delivery, e-mail or fax, or on the third Business Day following the mailing thereof; provided that no such communication shall be mailed during any actual or apprehended disruption of postal services.

Each of the Parties hereto shall be entitled to specify a different address for purposes of this section only by giving notice in accordance with the terms hereof.

5.11 Time. Time is of the essence in this Agreement.

5.12 Termination. This Agreement may be terminated: (i) by either Party immediately upon written notice to the other Party if the other party has breached its obligations hereunder in any material respect and such breach has not been cured within a reasonable period of time; (ii) immediately, in the event that either Party is liquidated or dissolved; or is generally not paying its debts as such debts become due; or has filed against it in a court of competent jurisdiction a petition for an order for relief in bankruptcy or liquidation or reorganization; or makes a general assignment for the benefit of creditors; or there is entered against such Party an order for relief under the bankruptcy laws by a court of competent jurisdiction; or such Party commences a voluntary action under the bankruptcy laws or for the appointment or taking possession of a receiver, custodian, or trustee for such Party or with respect to all or substantially all of its assets; or a receiver, custodian, or trustee is appointed by a court of competent jurisdiction for such Party or with respect to all or substantially all of its assets; (iii) by either Party, for any reason, on [***] prior written notice provided a Supply Contract has been executed ; and (iv) upon the effective date of termination or expiration of the Supply Contract in accordance with its terms. At any time after a notice of termination has been given or an event has occurred which, with the passage of time, will cause this Agreement to terminate, OptiNose shall have the right to require the Manufacturer, as soon as reasonably

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practicable and in no more than [***] from the effective date of termination, to make available for removal by OptiNose or its designee the OptiNose Equipment then held at the Facility, free and clear of all liens (other than liens created by OptiNose). In the event of termination by OptiNose pursuant to Sections 5.12(i) or 5.12(ii), such removal shall be at the Manufacturer's sole cost and expense.

5.13 Governing Law. This Agreement shall be governed by the laws of the Province of Ontario and the laws of Canada applicable therein.

5.14 Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which taken together constitute one and the same instrument.

[*signature page to follow*]

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

IN WITNESS WHEREOF the Parties have each executed and delivered this Agreement effective the date first written above.

OPTINOSE US, INC.

By: /s/ Ramy Mahmoud
Name: Ramy Mahmoud
Title: President

(I have authority to bind the corporation)

CONTRACT PHARMACEUTICALS LIMITED CANADA

By: /s/ Jan Sahai
Name: Jan Sahai
Title: Vice President Business Development

(I have authority to bind the corporation)

[Signature page of Master Bailment Agreement dated June 24, 2016]

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

EXHIBIT A

DELIVERY RECEIPT

This is to confirm that, as of the date hereof, Contract Pharmaceuticals Limited (the "**Bailee**") has received at its facility located at 7600 Danbro Crescent Mississauga, ON L5N 6L6 [· - QUANTITY, TYPE AND DESCRIPTION OF PROPERTY] ("**OptiNose Equipment**") for the account of OptiNose US, Inc. ("**Customer**"), as owner thereof, pursuant to the terms of the Master Bailment Agreement, dated as of , 2016, between Customer and the Bailee (as amended, modified, supplemented or restated from time to time, the "**Bailment Agreement**"). The Bailee represents and warrants that it has segregated (as applicable), tagged and marked the OptiNose Equipment for purposes of identifying it as the Customer's property in accordance with the terms of the Bailment Agreement.

Date:

CONTRACT PHARMACEUTICALS LIMITED CANADA

By:
Name:
Title:

(I have authority to bind the corporation)

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

EXHIBIT B

HOLDING CERTIFICATE

In connection with the Master Bailment Agreement dated as of , 2016 (as amended, modified, supplemented or restated from time to time, the "**Bailment Agreement**") between OPTINOSE US, INC. ("**Customer**") and CONTRACT PHARMACEUTICALS LIMITED (the "**Bailee**") pertaining to the delivery into storage of the OptiNose Equipment (as defined in the Bailment Agreement), the Bailee hereby acknowledges that, as of , 20 , it holds the following OptiNose Equipment at the Facility identified in the Bailment Agreement for the Customer, as owner, free and clear of all liens and encumbrances [***]:

OptiNose Equipment	Quantity

This Certificate constitutes a document of title under the *Personal Property Security Act* (Ontario).

The Bailee represents and warrants that the OptiNose Equipment identified herein is segregated (as applicable), tagged and marked in accordance with the Bailment Agreement.

Date:

CONTRACT PHARMACEUTICALS LIMITED CANADA

By: _____
Name:
Title:

(I have authority to bind the corporation)

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

SCHEDULE "A"

Description of OptiNose Equipment

1. **[*****]; and
2. **[*****].

(Quotations attached)

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Schedule B

Budget

[***]
[***]
[***]
[***]
[***]
[***]
[***]
[***]

[***]

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

SCHEDULE "D"

Manufacturer Secured Creditors

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

EXHIBIT D

Confidentiality Agreement

See attached.

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MUTUAL CONFIDENTIALITY AGREEMENT

THIS AGREEMENT is made on the June 26th, 2013.

BETWEEN:

(1) **OPTINOSE US INC.** with a place of business at 1010 Stony Hill Road, Ste 375, 19067 Yardley, PA, USA- including its affiliates OptiNose AS whose registered office is situated at Austliveien 1, 0751 Oslo (mailing address: Pb 288 Roa, 0702 Oslo), Norway and OptiNose UK Ltd., Berkeley House, Hunts Rise, South Marston Park, Wiltshire SN3 4TG, UK) - ("OptiNose"); and

(2) **Contract Pharmaceuticals Limited Canada** whose registered office is situated 1.4 at 7600 Danbro Crescent, Mississauga, Ontario, Canada L5N 6L6 ("Company").

WHEREAS:

OptiNose and Company are entering into discussions to provide each other with information relating to formulation development and contract manufacturing ("the Project") and in the course of the Project information of a confidential nature will be disclosed by OptiNose and Company to each other.

NOW IT IS HEREBY AGREED as follows:

1. In consideration for each party disclosing information to the other, each party hereby agrees and undertakes:

   (i) to keep confidential all information of whatever nature provided to it by the other party or generated as a direct result of any work which may be undertaken by the other or which otherwise becomes known to it during the course of the Project including (for the avoidance of doubt and without limitation) any business plans for the exploitation of the Project, information relating to customers and suppliers of the disclosing party, the terms of business of the disclosing party, its business, financial, sales and marketing information, business systems, software data, plans, specifications and other technical information ("the Information");

   (ii) not to use copy or retain any copies of Information, except for the purposes for which it is so provided or generated, without the prior written consent of the other;

   (iii) to keep all Information in a safe and secure place; and

   (iv) to ensure that Information is disclosed in confidence only to such of its employees as is essential for the purposes of the Project and that there is no disclosure of Information by its employees other than as is provided for in this Agreement.

2. Each party hereby undertakes not to disclose any Information to any third party except with the prior written consent of the other party.

3. The obligations contained in clauses above do not apply to any Information which is:

   (i) already known to either party prior to the commencement of the Project (but, for the avoidance of doubt, this exception shall not apply to any Information which became known to that party during the course of any previous discussions, negotiations or relationship with the other party);

(ii) published or otherwise comes into the public domain otherwise than in consequence of a breach of this Agreement by either party or a breach of confidence by a third party;

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(iii) required to be disclosed to the parties' professional advisers provided that such professional advisers agree to be bound by the terms of this agreement;

(iv) received from a third party lawfully entitled to supply the same;

(v) required to be disclosed pursuant to any law or regulation from time to time in force in the USA, Norway or the United Kingdom or on behalf of any competent regulatory authority or by a court of competent jurisdiction; or

(vi) developed by either party at any time independently of the Information disclosed to it by the other party by persons who have had no access to or knowledge of the Information.

4. Any Information supplied to either party or copied by it for the purposes of the Project will be returned by the other party upon demand and in any case upon the cessation of the Project.

5. The provisions of this Agreement shall remain in full force and effect for five years after the date of this Agreement.

6. No licence is hereby granted by OptiNose or Company to the other of them either directly or indirectly in respect of (1) their respective existing intellectual property rights or the rights of any third party, (2) the subject-matter of the Project or (3) any intellectual property rights created in the course of the Project.

7. The construction, validity and performance of this Agreement shall be governed in all respects in accordance with the laws of the State of New York. Any dispute concerning the interpretation of this Agreement shall be determined by the courts in the State of New York and the parties submit to the jurisdiction of that Court for such purpose.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

IN WITNESS whereof this agreement has been entered into on the date inserted at the head of this Agreement.

Signed: /s/ Peter Miller
For and on behalf of OptiNose US Inc.

By: Peter Miller
Position: President &CEO

Signed: /s/ Jan Sahai
For and on behalf of Contract Pharmaceuticals Limited Canada

By: Jan Sahai
Position: Vice President, Business Development

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

SCHEDULE 1

OptiNose Equipment

[***]

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

SCHEDULE 2

Form of Batch Records

The Form of Batch Records are to be finalized by the Parties concurrent with or as soon as practicable after the finalization of each relevant Specification, with OptiNose providing its final written approval thereto.

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SCHEDULE 3

Hovione Inter Ltd. for API

Ximedica, LLC for liquid delivery subassemblies

Advanced Mold and Manufacturing Inc. (d/b/a Vision Technical Molding) for caps

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

MANUFACTURING SERVICES AGREEMENT

This Manufacturing Services Agreement (this "**Agreement**"), dated as of August 31, 2017 (the "**Effective Date**"), is by and among, on the one hand, OptiNose US, Inc., duly organized and existing under the laws of Delaware and having offices located at 1020 Stony Hill Road, Suite 300, Yardley, PA 19067 (referred to herein as "OptiNose US"), OptiNose UK Ltd. duly organized and existing under the laws of England and having offices located at Hunts Rise, South Marston Park, Wiltshire, SN3 4TG, England (referred to herein as "OptiNose UK"), and OptiNose AS, duly organized and existing under the laws of Norway and having offices located at Gaustadalléen 21, 0349 Oslo, Norway (referred to herein as "OptiNose Norway", and collectively with OptiNose US and OptiNose UK, "OptiNose"), and, on the other hand, and Ximedica, LLC, a Rhode Island limited liability company, having a principal office at 55 DuPont Drive, Providence, Rhode Island 02907 ("**Ximedica**").

WHEREAS, Ximedica is a device development and manufacturing company skilled in the design, development, manufacture and assembly of medical devices and delivery systems and of their components;

WHEREAS, OptiNose desires to retain Ximedica to assemble and supply LDSAs (as defined herein) for use by OptiNose in the subsequent production of Finished Product (as defined herein) under FDA and other regulations for the benefit of patients.

In consideration of the mutual covenants and agreements hereinafter set forth, the parties agree as follows:

ARTICLE I
DEFINITIONS

"**Acting OptiNose Party**" shall have the meaning set forth in Section 17.17.

"**Action**" shall have the meaning set forth in Section 12.01.

"**Affiliate**" means any Person that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, another Person. The term "control" (including the terms "controlled by" and "under common control with") means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise.

"**Agreement**" shall have the meaning set forth in the preamble.

"Binding Period" shall have the meeting set forth in Section 2.06.

"Capacity" means the facility space, equipment, utilities, maintenance capabilities, infrastructure, human capital, and other capabilities in sufficient volume needed to manufacture LDSAs, except for the OptiNose Equipment.

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"**Confidential Information**" means any information that is treated as confidential by a party, whether tangible or intangible, including, without limitation, any and all specification information, techniques, discoveries, inventions, processes, know-how, patent applications and related information, inventor certificates, trade names, trade secrets, methods of production, technology, other proprietary information, other intellectual property, information pertaining to business operations and strategies, and information pertaining to pricing, and marketing of Finished Product or Material. Confidential Information shall not include information that: (a) is already known to the Receiving Party without restriction on use or disclosure prior to receipt of such information from the Disclosing Party; (b) is or becomes generally known by the public other than by breach of this Agreement by, or other wrongful act of, the Receiving Party; (c) is developed by the Receiving Party independently of, and without reference to, any Confidential Information of the Disclosing Party; or (d) is received by the Receiving Party from a third party who is not under any obligation to the Disclosing Party to maintain the confidentiality of such information.

"**Defaulting Party"** shall have the meaning set forth in Section 15.02.

"**Defective Product**" means any LDSA that fails to conform to the Specifications, Quality Agreement or applicable Laws or that contains a Latent Defect or Patent Defect.

"**Deliverables**" means all documents, work product and other materials that are delivered to OptiNose hereunder or prepared by or on behalf of Ximedica in the course of performing the services under this Agreement.

"Direct Cost" shall have the meeting set forth in Exhibit A.

"**Disclosing Party**" means a party that discloses Confidential Information under this Agreement.

"**Effective Date**" shall have the meaning set forth in the preamble of this Agreement.

"**Effective Designation Date**" shall have the meaning set forth in Section 17.19.

"FDA" means the U.S. Food & Drug Administration.

"**FD&C Act**" means the Federal Food, Drug, and Cosmetic Act, as amended, and includes the rules, regulations and guidances promulgated thereunder (including, without limitation, current Good Manufacturing Practices).

"Finished Product" means the full saleable product unit for OPN-375 including without limitation active ingredient, delivery system, container closure system, and market package.

"**Force Majeure Event**" shall have the meaning set forth in Section 18.01.

"Further Indirect Cost" shall have the meeting set forth in Exhibit A.

"Indirect Cost" shall have the meeting set forth in Exhibit A.

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"**Intellectual Property Rights**" means all (a) patents, patent disclosures and inventions (whether patentable or not), (b) trademarks, service marks, trade dress, trade names, logos, corporate names and domain names, together with all of the goodwill associated therewith, (c) copyrights and copyrightable works (including computer programs), mask works, and rights in data and databases, (d) trade secrets, know-how and other confidential information, and (e) all other intellectual property rights, in each case whether registered or unregistered and including all applications for, and renewals or extensions of, such rights, and all similar or equivalent rights or forms of protection in any part of the world.

"**Latent Defect**" means a defect where any LDSA fails to conform to the Specifications, Quality Agreement or applicable Laws, which could not reasonably have been discovered upon receipt and physical inspection of the LDSA by OptiNose or its designee.

"**Law**" means any statute (including without limitation the FD&C Act), law, ordinance, regulation, rule, code, order, constitution, treaty, common law, judgment, decree, other requirement or guidance, or rule of law of any federal, state, local or foreign government or political subdivision thereof, or any arbitrator, court or tribunal of competent jurisdiction that is applicable: (a) to the obligations of Ximedica in supplying OptiNose with the LDSAs, and performing any related activities under other terms of this Agreement, or (b) to the obligations of OptiNose.

"LDSA" means a liquid delivery subassembly component manufactured under this Agreement.

"**Losses**" means all losses, damages, liabilities, deficiencies, actions, judgments, interest, awards, penalties, fines, costs or expenses of whatever kind, including reasonable attorneys' fees and the cost of enforcing any right to indemnification hereunder and the cost of pursuing any insurance providers.

"Material" means the OptiNose Components and all other components and inputs needed for Ximedica to manufacture the LDSAs in accordance with the Specifications.

"**NDA**" means a new drug application filed with the FDA.

"**OptiNose**" shall have the meaning set forth in the preamble.

"OptiNose Components" shall have the meaning set forth in Section 2.02(a).

"OptiNose Equipment" means equipment (i) that can be used only for production of LDSA's under this Agreement or (ii) that OptiNose desires to have dedicated solely to the production of LDSA's under this Agreement.

"OptiNose Indemnitee" shall have the meeting set forth in Section 12.01.

"**OptiNose Information**" means any documents, data, know-how, trade secrets, methodologies, software and other information (Confidential Information or otherwise) provided to

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Ximedica by or on behalf of OptiNose or developed by Ximedica on behalf of OptiNose, including without limitation computer programs, reports and specifications.

"**OptiNose Supply Relationship Manager**" shall have the meaning set forth in Section 7.01(a)

"**Patent Defect**" means any instance where any LDSA fails to conform to the Specifications, Quality Agreement or applicable Laws due to the acts or omissions of Ximedica, where such failure is or was discoverable upon reasonable physical inspection upon receipt by OptiNose or its designee.

"**Person**" means an individual, corporation, partnership, joint venture, limited liability company, governmental authority, unincorporated organization, trust, association or other entity.

"**Pre-existing Information**" means all documents, data, know-how, methodologies, software and other information provided by or used by Ximedica in connection with performance by Ximedica under this Agreement, in any case developed or acquired by Ximedica independently of this

Agreement and of other services performed by Ximedica for OptiNose prior to or after the date hereof.

"Purchase Order" shall have the meaning set forth in Section 2.08(a).

"Quality Agreement" means that Quality Agreement between OptiNose and Ximedica to be entered between the parties related to production of the LDSAs.

"Quantitative Defect" means any instance in which Ximedica has delivered a quantity that is [***] percent ([***]%) less than, or [***] percent ([***]%) greater than, the quantity stated in any invoice or bill of lading.

"**Receiving Party**" means a party that receives or acquires Confidential Information directly or indirectly under this Agreement.

"Rolling Forecast" shall have the meeting set forth in Section 2.06.

"Specifications" means those issued specifications according to the Device Master Record for the LDSA.

"**Term**" shall have the meaning set forth in Section 14.01.

"**Ximedica**" shall have the meaning set forth in the preamble.

"**Ximedica Supply Relationship Manager**" shall have the meaning set forth in **Section 6.01(a)**.

"**Ximedica Equipment**" means any and all equipment, systems, or facilities owned or leased, by or on behalf of Ximedica and made available for either direct or indirect performance by Ximedica under this Agreement.

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"**Ximedica Personnel**" means all employees, contractors, and consultants, engaged by Ximedica to perform under this Agreement.

ARTICLE II
SUPPLY OF LDSAS

Section 2.01 Supply. During the Term and subject to the terms and conditions set forth herein, Ximedica shall manufacture LDSAs in compliance with the Specifications, Quality Agreement, applicable Laws and the other terms of this Agreement and deliver them to OptiNose or its designee. Delivery of the LDSAs shall be [***]; [***] shall arrange for the LDSAs to be picked up by a carrier identified and paid by [***] or its designee. During the Term, Ximedica shall use [***] to ensure that it has the Capacity to meet all of OptiNose's requirements for LDSAs in a timely manner based on the applicable Rolling Forecast under this Agreement; provided that if new or additional OptiNose Equipment is required, Ximedica will inform OptiNose with sufficient lead time for such OptiNose Equipment to be acquired by OptiNose [***] and qualified for use under this Agreement taking into account normal equipment malfunctions and breakdowns not preventable through normal maintenance; provided, that additional OptiNose Equipment shall not be deemed required until existing OptiNose Equipment is being fully utilized, including without limitation usage during [***] ([***]) [***] ([***]) hour shifts per week.

Section 2.02 Inputs for Supply of LDSA's.

(a) OptiNose is responsible for negotiation of agreements and payment for the items listed on Exhibit B ("**OptiNose Components**") for use in the manufacture of LDSA's.

(b) OptiNose will manage the relationship with suppliers of the OptiNose Components identified in Exhibit B, placing orders for OptiNose Components, arranging delivery to Ximedica of the OptiNose Components at OptiNose's cost, and ensuring that such suppliers perform in accordance with requirements of OptiNose. Ximedica shall enter into quality agreements or the equivalent with such suppliers of the OptiNose Components in consultation with OptiNose (including OptiNose's review and comment on such quality agreements), requiring such suppliers to comply with Law and to supply the OptiNose Components in a manner that enables Ximedica to supply the LDSA's in accordance with the Specifications and the other requirements of this Agreement. Ximedica shall manage suppliers of the OptiNose Components within Ximedica's quality systems as appropriate to ensure compliance with the quality agreements referenced in this Section 2.02(b). OptiNose may initiate the addition or replacement of suppliers for each OptiNose Component upon [***] written notice to Ximedica and will work with Ximedica to execute such addition or replacement according to relevant OptiNose and Ximedica procedures at OptiNose's expense.

(c) [***] is responsible for the negotiation, payment, purchase, and delivery to Ximedica of all Material other than the OptiNose Components. Appropriate agreements and documentation of quality related requirements will also be the responsibility of [***].

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Section 2.03 Specifications. The Specifications may be amended in accordance with the terms of this Agreement, the Quality Agreement, or as required by the FDA or other similar regulatory authority, and by the written agreement of the parties. Ximedica shall not make changes to the Specifications without OptiNose's prior written approval as provided for in the Quality Agreement.

Section 2.04 Validation and Other Services. Before manufacturing LDSAs under this Agreement, Ximedica will have completed validation necessary and appropriate for such manufacture in accordance with the Specifications, applicable protocols- and the other requirements of this Agreement.

Section 2.05 Pricing. Pricing for all LDSAs and any associated services shall be as set forth on Exhibit A. The pricing included will be negotiated [***]. Ximedica will use [***] to engage in continuous improvement processes with respect to the manufacture of the LDSAs and any such resulting cost reductions shall be taken into account in evaluating any price changes as contemplated by this Section 2.05. In determining whether to adjust prices at any [***] interval as provided in this Section 2.05, the Parties will determine whether any of Ximedica's actual costs reflected in Exhibit A have changed and will incorporate such changes into the Price on a prospective basis; [***]. Ximedica shall provide sufficient documentation to support any price adjustment in accordance with this Section and OptiNose shall have the right, [***], to have such documentation (including requisite documentation from prior price increases) reviewed by an independent third party [***] acceptable to Ximedica.

Section 2.06 Forecasts. Commencing on the Effective Date, OptiNose shall provide Ximedica with a non-binding, rolling [***] forecast of its LDSA requirements by quarter from Ximedica ("**Rolling Forecast**"). The portion of the Rolling Forecast for the first [***] period shall be binding (a "**Binding Period**") and the remaining [***] shall be for planning purposes and not binding (a "**Non-Binding Period**"). OptiNose shall place Purchase Orders for the Binding Period of the Rolling Forecast in accordance with Section 2.08 of this Agreement. The Rolling Forecast shall be updated [***] by OptiNose no later than the [***] ([***]) business day of each calendar month with the Binding Period updated with each Rolling Forecast to include the new [***] of the going forward [***] rolling forecast. Ximedica shall participate in periodic sales and operations planning meetings with OptiNose and other suppliers as OptiNose [***] deems appropriate. Notwithstanding any other provision of this Agreement, for Rolling Forecasts issued prior to the approval by the FDA of the NDA for the Finished Product, OptiNose shall not be required to buy any quantities that otherwise would be applicable for any Binding Period and OptiNose may, in its sole discretion, cancel or reduce any Purchase Order; [***]. The parties will [***] regarding planning of production of initial LDSAs required to build the initial launch quantities of the Finished Product promptly after approval by FDA of the NDA. Ximedica shall provide OptiNose monthly inventory reports of LDSAs, OptiNose Components and all other Materials inventoried by Ximedica solely for the manufacture of LDSAs.

Section 2.07 Use of Forecasts. Ximedica will reference the latest available Rolling Forecasts when ordering those Materials (excluding the OptiNose Components which shall

be ordered by OptiNose) necessary or appropriate to fulfill the forecasted LDSA requirements, taking into account necessary lead times, volume-based pricing, the applicable Materials' expiration periods, the Binding Period, and any Purchase Orders for LDSAs outside the Binding Period. Ximedica may purchase such Materials (including minimum quantities required by suppliers) on the basis of OptiNose's most recent Rolling Forecasts for the applicable Binding Period and, further, the Rolling Forecast for the longer period in the case of such Materials having a longer lead time than [***]. If (a) the Purchase Orders for the corresponding period from OptiNose are for a quantity less than would reasonably support the amount of such Materials that Ximedica purchased in good faith reliance upon Binding Forecasts and according to the terms of this Agreement and (b) Ximedica represents in writing that it is ultimately, in the exercise of [***], unable to return such Materials or otherwise use them, including without limitation to make LDSAs within [***] of receipt of such Materials by Ximedica, [***]. Invoices will be provided to substantiate the value of such Materials. [***].

Section 2.08 Purchase Orders.

(a) OptiNose shall submit purchase orders specifying: (a) the number of units of LDSAs to be manufactured, (b) the Price (determined in accordance with Exhibit A hereto) and (c) the expected delivery date ("**Purchase Orders**"). Unless otherwise agreed, a Purchase Order shall not request a shipment date sooner than [***] ([***]) business days from the date of the Purchase Order unless agreed to separately by both parties. Ximedica shall confirm acceptance of Purchase Orders and projected dates of shipment within [***] ([***]) business days of receiving a Purchase Order. Failure of Ximedica to confirm any Purchase Order within the [***] ([***]) business day period shall be deemed to be acceptance of such Purchase Order, price and delivery.

(b) For any Binding Period, OptiNose shall submit Purchase Orders that aggregately meet at least [***]% of the Rolling Forecast for such Binding Period, and Ximedica shall supply such Purchase Orders. If the Purchase Orders for a month in the Binding Period in aggregate exceed the Rolling Forecast for such month by an amount between [***], Ximedica shall supply such excess under this Agreement, provided, however, that, in any consecutive [***] of the Rolling Forecast for such [***]. If such Purchase Orders in aggregate exceed the Rolling Forecast for such month in the Binding Period by more than [***], Ximedica shall use [***] to fill such orders, but shall not be in breach of this Agreement if Ximedica does not supply such excess beyond [***], as applicable. Ximedica shall promptly advise OptiNose to what extent Ximedica can fulfill such excess amount above [***], as applicable, which amount shall be considered part of the accepted Purchase Order hereunder.

Section 2.09 Release of LDSAs. Upon completion of manufacture and associated testing documentation and before shipping each batch, Ximedica shall send batch documentation, prepared pursuant to the Quality Agreement, to OptiNose's designee for review and approval. If OptiNose or its designee advises Ximedica of any issues or concerns regarding such batch documentation, Ximedica shall promptly rectify any such issue or concern and reissue updated batch documentation for review and approval within the time periods set forth in the Quality Agreement. Upon OptiNose's (or OptiNose's designee) receipt of complete batch

documentation for such shipment, OptiNose's designee shall, within the time period set forth in the Quality Agreement, review and respond as to whether the batch is approved for shipment.

Section 2.10 Non- or late Deliveries. In the event that Ximedica is unable to make delivery by a ready to ship date specified in the applicable Purchase Order, Ximedica shall immediately notify OptiNose (and any designee of OptiNose) of such delay and provide the date of availability for the shipment. If Ximedica fails to deliver the LDSAs in the quantities ordered in any Purchase Order within [***] of the date specified in such Purchase Order, then in addition to, and without waiver or limitation of any of its other rights hereunder, at law or in equity, OptiNose shall be entitled to a discount of [***]; provided, however such discount shall not apply to the extent such failure to timely deliver by Ximedica is [***]; provided, further, that in all instances Ximedica shall use its [***] to timely deliver LDSAs even if there were prior delays in the OptiNose Components due to [***]. The adjusted price shall be reflected by Ximedica in its invoice relating to the affected Purchase Order.

Section 2.11 Manager Meetings. The parties shall meet periodically [***] at meetings to be organized by the OptiNose Supply Relationship Manager and the Ximedica Supply Relationship Manager to discuss, agree upon, and oversee implementation of initiatives to plan Capacity and OptiNose Equipment requirements, improve the LDSA manufacturing process to improve quality and to reduce cost and price for the benefit of both parties. Participants in such meetings will be agreed to by the parties. For each such agreed initiative, the parties shall agree on the capital and expense to implement the initiative, the party to provide funds for such capital and expense, the expected cost savings to result, and an equitable sharing of the cost and other benefits from the initiative after recoupment of the funds provided for the initiative (which sharing shall take into account a reasonable return on investment for the party providing the funds to implement such initiative).

ARTICLE III
EQUIPMENT, INVENTORY AND WORK IN PROGRESS

Section 3.01

(a) Ximedica acknowledges that the OptiNose Equipment [***], is owned by OptiNose and that OptiNose may place identifying tags on the OptiNose Equipment confirming and providing notice of OptiNose's ownership. Ximedica shall not permit [***], and shall only use the OptiNose Equipment for the manufacture of the LDSAs hereunder or other activities for OptiNose. Ximedica hereby disclaims any interest, to the extent it has any, in the OptiNose Equipment and agrees to execute and deliver any agreements or other documents evidencing OptiNose's ownership of such OptiNose Equipment.

(b) Ximedica shall, [***], maintain the OptiNose Equipment in good working order (including maintenance and repair in the ordinary course and calibration, if needed) such that the

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

OptiNose Equipment enables Ximedica to produce LDSAs according to the Specifications and otherwise in accordance with this Agreement. OptiNose shall be responsible for [***].

(c) At OptiNose's written request, Ximedica shall make available at Ximedica's facility such OptiNose Equipment as OptiNose may designate, [***], and Ximedica shall provide [***] at OptiNose's [***] in transitioning such OptiNose Equipment to OptiNose or another supplier, including technical assistance to OptiNose or such other supplier in using the OptiNose Equipment to manufacture LDSAs.

Section 3.02 **Inventory and Work In Progress**. The parties acknowledge that the OptiNose Components are the substantial majority of the inputs to the LDSAs by value and that the OptiNose Components will be the property of OptiNose at all times that such OptiNose Components are in Ximedica's possession. Accordingly, the parties agree that as other Material becomes integrated with the OptiNose Components as part of the manufacturing process to produce LDSAs, such partially completed LDSAs immediately without further action shall be the property of OptiNose, and that completed LDSAs still in the possession of Ximedica are the property of OptiNose at all times Ximedica shall not [***].

Section 3.03 **Bailment Agreements**. Ximedica agrees to enter a bailment agreement with OptiNose in the form reasonably acceptable to both parties for the OptiNose Equipment, the OptiNose Components, partially completed LDSAs containing OptiNose Components, and completed LDSAs.

ARTICLE IV
DEFECTIVE PRODUCT

Section 4.01 Notification of Defective Product. OptiNose or its designee shall notify Ximedica within:

- [***] business days after receiving a shipment of LDSAs if it determines that such shipment contains a Quantitative Defect,
- [***] business days after receiving a shipment of LDSAs if it determines that such shipment contains a Patent Defect, and
- [***] business days after OptiNose becomes aware of a Latent Defect.

OptiNose shall provide Ximedica a sample of what it alleges contains a Latent or Patent Defect, subject to compliance with the foregoing notice requirements and the provisions of Section 4.02, below.

Section 4.02 Resolution of Defective Product.

(a) Patent Defect and Latent Defect. Subject to, and without waiver or limitation of OptiNose's rights and remedies hereunder, at law and/or in equity, if Ximedica agrees that an LDSA has a Patent Defect or Latent Defect, Ximedica shall, [***], (i) [***] or (ii) [***]; provided,

however, notwithstanding (i) and (ii) above, to the extent any such Defective Product [***]. If Ximedica does not agree with OptiNose's determination that such LDSAs or shipment has a Latent or Patent Defect, then after [***] to resolve the disagreement, and subject to, and without waiver or limitation of OptiNose's and/or Ximedica's rights and remedies hereunder, at law and/or in equity, either Party may submit a sample of such LDSAs to a mutually agreed upon independent third party testing laboratory which is an expert in the industry and which will expertly apply the agreed upon testing protocol in order to determine whether the LDSAs meet the Specifications and the other requirements of this Agreement. The independent party's results shall be final and binding for purposes of determining whether payment is owed (but not for purposes of any pending or potential products liability litigation which shall be governed by Article 9 hereof). If such results indicate that the LDSAs were Defective Products, then in addition to, and without waiver or limitation of OptiNose's or Ximedica's rights and remedies hereunder, at law and/or in equity, Ximedica shall, [***], (i) [***], or (ii) [***]. If the independent party's results indicate the LDSA was not a Defective Product, OptiNose shall [***]. Unless otherwise agreed to by the Parties in writing, the costs associated with testing and review of an LDSA pursuant to this Section shall be borne by [***].

(b) Quantitative Defect. Subject to, and without waiver or limitation of OptiNose's and/or Ximedica's rights and remedies hereunder, at law and/or in equity, if OptiNose believes that a shipment has a Quantitative Defect, OptiNose shall notify Ximedica within the applicable period. If Ximedica agrees with such Quantitative Defect, Ximedica will promptly, and in no event more than [***] business days, ship sufficient LDSAs at OptiNose's direction to remedy such Quantitative Defect. If Ximedica does not agree with OptiNose's determination that such shipment has a Quantitative Defect, then after [***] to resolve the disagreement, and subject to, and without waiver or limitation of OptiNose's and/or Ximedica's rights and remedies hereunder, at law and/or in equity, Ximedica may require a mutually agreed upon independent third party to determine whether the shipment had a Quantitative Defect. The independent party's results shall be final and binding for purposes of determining whether Ximedica is obligated to ship additional LDSAs, and the costs of such independent third party shall be borne by [***]. If such results indicate that the shipment had a Quantitative Defect, then in addition to, and without waiver or limitation of OptiNose's or Ximedica's rights and remedies hereunder, at law and/or in equity, OptiNose shall be entitled to [***].

ARTICLE V
RECORDS AND REGULATORY MATTERS

Section 5.01 Recordkeeping. Ximedica shall maintain true and accurate books, records, inventory of Materials and finished LDSAs, test and laboratory data, reports and all other information relating to Manufacturing under this Agreement, including all information required to be maintained by all Law. Such information shall be maintained for the period specified in the Quality Agreement or longer if required under Law. Ximedica shall provide or make such information available to OptiNose upon request and shall notify and provide OptiNose with advance notice and opportunity to obtain such information at the end of the retention period.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Section 5.02 Regulatory Compliance. Ximedica will be responsible to maintain all permits and licenses required by any Law with respect to the facility and its equipment (other than the OptiNose Equipment for which OptiNose shall be solely responsible) for the manufacture and delivery of LDSAs and will manufacture and deliver the LDSAs in accordance with the requirements of this Agreement, including the Quality Agreement, the Specifications and applicable Laws. In addition, during the Term, at OptiNose's request Ximedica will provide [***] assistance [***] with all regulatory matters relating to the manufacturing of the LDSAs and services under this Agreement. Each Party intends and commits to cooperate to satisfy all Law within the scope of its respective responsibilities under this Agreement.

Section 5.03 Regulatory Correspondence. Ximedica shall notify OptiNose in accordance with the Quality Agreement of any notice, correspondence, and the result of any inspection(s) by or with the FDA or any Regulatory Authority (including without limitation any 483, warning letter, or similar correspondence) concerning an actual or potential regulatory deficiency, noncompliance or problem that directly or indirectly relates to the manufacturing of the LDSAs or any of the services provided by Ximedica under this Agreement. Ximedica shall notify OptiNose in accordance with the Quality Agreement of any other notice or correspondence, and the result of any inspection(s), with the FDA or any Regulatory Authority that is reasonably likely to impact or directly relates to the manufacture of LDSAs or other performance under this Agreement. In all of the foregoing notifications, Ximedica shall provide OptiNose with copies of any such notices, correspondences, or results of inspection in accordance with the Quality Agreement. Furthermore, Ximedica shall send a draft to OptiNose of all correspondence Ximedica intends to send to any Regulatory Authority with any substantial relation to LDSAs. For all correspondence with a Regulatory Authority related to LDSAs that is in response to any 483, warning letter, regulatory deficiency or other problem relating to the manufacture of LDSAs, Ximedica shall consult with, and reasonably consider the input of, OptiNose on the draft correspondence before such correspondence is sent to the Regulatory Authorities. Regarding all interactions with Regulatory Authorities, both parties shall make [***] to act expeditiously in cooperating with each other and responding to Regulatory Authorities.

Section 5.04 Governmental Inspections and Requests. Ximedica shall as soon as [***] practicable in accordance with the Quality Agreement inform OptiNose in writing of any inspection, notice or request for inspection, and other regulatory action, by any regulatory agency relating to the manufacture of LDSAs and/or, in the case of a facility to the extent related to Ximedica's manufacturing, packaging, testing and storage of LDSAs at such facility, so that OptiNose has as much advance notice as possible to enable it to, as applicable and relevant, participate in preparation and/or strategy regarding and/or attend the inspection. Ximedica shall permit the OptiNose's representatives to be present during any such inspection related to LDSAs, including being present at any inspection of the facility to the extent such inspection is related to Ximedica's manufacturing, packaging, testing or storage of the LDSAs. As provided in Section 5.03, Ximedica will provide OptiNose with the results of all regulatory inspection or audits related to the LDSAs after Ximedica's receipt of such results in accordance with the Quality Agreement.

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Section 5.05 Recall. In the event Ximedica believes a recall, field alert, product withdrawal or field correction may be necessary with respect to any LDSA provided under this Agreement, Ximedica shall as soon as practicable notify OptiNose in writing. Ximedica will not act to initiate a recall, field alert, product withdrawal or field correction with respect to the LDSAs. In the event OptiNose believes a recall, field alert, product withdrawal or field correction may be necessary with respect to any LDSA provided under this Agreement, OptiNose shall immediately notify Ximedica in writing and Ximedica shall provide [***] cooperation and assistance to OptiNose. The cost of any recall, field alert, product withdrawal or field correction, and any assistance in connection therewith, shall be borne by [***]. For avoidance of doubt and subject to applicable Laws, OptiNose shall have the ultimate and final authority to initiate a recall of the LDSAs.

Section 5.06 Inspections and Audits by OptiNose. [***], representatives of OptiNose shall have access upon [***] prior notice to Ximedica's facility where it manufactures LDSAs for the purpose of: (a) conducting inspections of such facility and Ximedica's maintenance and usage of the equipment utilized in the manufacture of the LDSAs, (b) performing quality control and quality assurance (including without limitation cGMP) audits (c) witnessing the manufacture, storage or transportation of the LDSAs or the Materials, and (d) requiring cycle counts by Ximedica (and adjustments to inventory as necessary). OptiNose shall have access to the results of any tests performed by Ximedica relating to LDSAs and Materials and the processes or the Material that Ximedica's purchases directly from a third party used in their manufacture. Such inspections shall not relieve Ximedica of any of its obligations under this Agreement or create new obligations on the part of OptiNose. This right of inspection can be exercised [***] (and as often as necessary for cause), subject to a written notice to Ximedica given in accordance with the time periods specified in the Quality Agreement, or at any time for cause. Ximedica shall permit such inspection during normal business hours at reasonable and mutually acceptable times [***]. At all times, OptiNose's representatives shall be accompanied by Ximedica personnel and follow all site reasonable health and safety policies of Ximedica. Each inspection, audit and witnessing shall be subject, at all times, to Ximedica's confidentiality and non-disclosure obligations to its other third party customers.

ARTICLE VI
XIMEDICA OBLIGATIONS

Section 6.01 Ximedica shall:

(a) appoint a Ximedica employee to serve as a primary contact with respect to this Agreement and who will have the expertise and authority to act on behalf of Ximedica in connection with matters pertaining to this Agreement (the **"Ximedica Supply Relationship Manager**");

(b) maintain the same Ximedica Supply Relationship Manager throughout the Term except for changes in such personnel due to:

(i) OptiNose's request; or

(ii) the resignation or termination of such personnel or other circumstances outside of Ximedica's reasonable control;

(c) before the date on which the services under this Agreement are to start, obtain, and at all times during the Term maintain, all necessary licenses and consents and comply with all Laws;

(d) prior to any Ximedica Personnel performing any services hereunder: (i) ensure that such Ximedica Personnel are suitably trained, skilled, experienced and qualified to perform such services; and (ii) ensure that such Ximedica Personnel have the legal right to work in the United States; and

(e) maintain complete and accurate records relating to the provision of services under this Agreement, including records of the time spent and Materials used by Ximedica in providing such services in such form as OptiNose shall approve. During the Term and for a period of [***] thereafter, upon OptiNose's written request, Ximedica shall allow OptiNose or OptiNose's representative to inspect and make copies of such records and interview Ximedica Personnel in connection with the provision of the services under this Agreement; provided that any such inspection shall take place during regular business hours no more than [***] (which limit shall not include any inspections for cause) and OptiNose provides Ximedica with [***] advance written notice.

Section 6.02 Ximedica is responsible for all Ximedica Personnel and for the payment of their compensation, including, if applicable, withholding of income taxes, and the payment and withholding of social security and other payroll taxes, unemployment insurance, workers' compensation insurance payments and disability benefits.

Section 6.03 Ximedica acknowledges that time is of the essence with respect to Ximedica's obligations hereunder and that prompt and timely performance of all such obligations is strictly required.

Section 6.04 The obligations of Ximedica under this Agreement shall be performed fully within the facility located at 55 Dupont Drive, Providence RI. United States, unless approved in writing in advance by OptiNose.

Section 6.05 Upon Ximedica's receipt of OptiNose Components, Ximedica shall promptly inspect such OptiNose Components in accordance with the applicable inspection criteria and ensure that such OptiNose Components provided by each such supplier meets the applicable specifications for such OptiNose Components and that no patent defects or quantitative defects exist. Ximedica shall do such inspection within [***] business days of its receipt of such OptiNose Components. Should the OptiNose Components fail any such inspection or should Ximedica identify any issues with the OptiNose Components, Ximedica shall provide OptiNose and the applicable supplier of such OptiNose Components notice of such failure and/or issue within [***] business day.

ARTICLE VII
OPTINOSE'S OBLIGATIONS

Section 7.01 OptiNose shall:

(a) appoint an OptiNose employee to serve as the primary contact with respect to this Agreement and who will have the expertise and authority to act on behalf of OptiNose with respect to matters pertaining to this Agreement (the "**OptiNose Supply Relationship Manager**");

(b) respond [***] to any Ximedica request to provide direction, information, approvals, authorizations or decisions that are reasonably necessary for Ximedica to perform in accordance with this Agreement;

(c) provide such information as Ximedica may reasonably request and OptiNose considers [***] necessary in order to perform under this Agreement;

(d) obtain and maintain all necessary licenses and consents and comply with all Law to the extent necessary for OptiNose's performance under the Agreement; and

(e) obtain and maintain throughout the term of this Agreement insurance on the OptiNose Equipment in [***] amounts and coverage.

ARTICLE VIII
FEES AND EXPENSES; PAYMENT TERMS

Section 8.01 Ximedica shall issue invoices to OptiNose upon delivery to OptiNose in accordance with Section 2.01 of LDSAs with pricing pursuant to Exhibit A for such LDSAs produced, and OptiNose shall pay all properly invoiced amounts due to Ximedica within [***] days after OptiNose's acceptance for delivery, by OptiNose or its designee and receipt of such invoice, except for any amounts disputed by OptiNose in good faith (subject to OptiNose's match process for Purchase Order, invoice and receipt). Ximedica shall provide, for OptiNose's review and prior written approval, statements of work with budgetary allowances for any services not required to be provided by Ximedica at its costs by the quality agreement or this Agreement. Ximedica will provide invoices to those services as incurred on a monthly basis. All payments hereunder shall be in US dollars and made by check or wire transfer. The provisions of this Agreement shall govern over any terms and conditions listed on any invoice or Purchase Order. A service fee of [***]% per month will be added to all accounts more than [***] days past due, and [***] is responsible for all collection and attorneys' fees and costs required to collect unpaid amounts.

Section 8.02 [***] shall be responsible for all sales, use and excise taxes, and any other similar taxes, duties and charges of any kind imposed by any federal, state or local governmental entity on any amounts payable to Ximedica hereunder; [***]. In no event shall [***] pay or be responsible for any taxes imposed on, or with respect to, [***] income, revenues, gross receipts, personnel or real or personal property or other assets.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Section 8.03 Without prejudice to any other right or remedy it may have, OptiNose reserves the right to [***].

ARTICLE IX
INTELLECTUAL PROPERTY RIGHTS; OWNERSHIP

Section 9.01 Except as set forth in Section 9.03, OptiNose is, and shall be, the sole and exclusive owner of all right, title and interest in and to any Intellectual Property Rights generated in connection with Ximedica's performance under this Agreement, and to any of the Deliverables, including all Intellectual Property Rights therein. Ximedica agrees, and will cause its Ximedica Personnel to agree, that with respect to any Intellectual Property Rights or Deliverables that may qualify as "work made for hire" as defined in 17 U.S.C. §101, such Intellectual Property Rights and Deliverables are hereby deemed a "work made for hire" for OptiNose. To the extent that any of the Intellectual Property Rights or Deliverables hereunder do not immediately vest in OptiNose or do not constitute a "work made for hire", Ximedica hereby irrevocably assigns on behalf of itself and all Ximedica Personnel, and shall cause the Ximedica Personnel to irrevocably assign to OptiNose, in each case without additional consideration, all right, title and interest throughout the world in and to such Intellectual Property Rights and Deliverables, including all Intellectual Property Rights therein. Ximedica shall cause the Ximedica Personnel to irrevocably waive, to the extent permitted by applicable Law, any and all claims such Ximedica Personnel may now or hereafter have in any jurisdiction to so-called "moral rights" or rights of droit moral with respect to such Intellectual Property Rights and Deliverables.

Section 9.02 Upon the request of OptiNose, Ximedica shall, and shall cause the Ximedica Personnel to, promptly take such further actions, including execution and delivery of all appropriate instruments of conveyance, as may be necessary to assist OptiNose to prosecute, register, perfect or record its rights in or to any Deliverables.

Section 9.03 Ximedica and its licensors are, and shall remain, the sole and exclusive owners of all right, title and interest in and to the Pre-existing Information, including all Intellectual Property Rights therein. Ximedica hereby grants OptiNose a limited, irrevocable, perpetual, fully paid-up, royalty-free, transferable, sublicenseable, worldwide license to use, perform, display, execute, reproduce, distribute, transmit, modify (including to create derivative works), import, make, have made, sell, offer to sell and otherwise exploit any Pre-existing Information to the extent incorporated in, combined with or otherwise necessary for the use of the Intellectual Property Rights owned by or assigned to OptiNose hereunder and/or the Deliverables to the extent reasonably required for production of LDSAs by OptiNose or its designee. All other rights in and to the Pre-existing Information are expressly reserved by Ximedica.

Section 9.04 OptiNose and its licensors are, and shall remain, the sole and exclusive owner of all right, title and interest in and to the OptiNose Information, including all Intellectual Property Rights therein. Ximedica shall have no right or license to use any OptiNose Information, except solely during the Term of the Agreement to the extent necessary to perform

under this Agreement. All other rights in and to the OptiNose Information are expressly reserved by OptiNose.

ARTICLE X
CONFIDENTIAL INFORMATION

Section 10.01 The Receiving Party agrees:

(a) not to disclose or otherwise make available Confidential Information of the Disclosing Party to any third party without the prior written consent of the Disclosing Party; *provided*, *however*, that the Receiving Party may disclose the Confidential Information of the Disclosing Party to its Affiliates, and their officers, employees, consultants and legal advisors who have a "need to know", who have been apprised of this restriction and who are themselves bound by nondisclosure obligations at least as restrictive as those set forth in this Article X, provided, that, the Receiving Party shall be responsible for any disclosure or use of Confidential Information by such persons or entities that is contrary to the terms of this Agreement;

(b) to use the Confidential Information of the Disclosing Party only for the purposes of performing its obligations under the Agreement or, in the case of OptiNose, to make use of the services under this Agreement and Deliverables; and

(c) to promptly notify the Disclosing Party in the event it becomes aware of any loss or disclosure of any of the Confidential Information of the Disclosing Party.

Section 10.02 If the Receiving Party becomes legally compelled to disclose any Confidential Information, the Receiving Party shall provide: (i) prompt written notice of such requirement so that the Disclosing Party may seek, at its sole cost and expense, a protective order or other remedy; and (ii) [***] assistance, [***], in opposing such disclosure or seeking a protective order or other limitations on disclosure. If, after providing such notice and assistance as required herein, the Receiving Party remains required by Law to disclose any Confidential Information, the Receiving Party shall disclose no more than that portion of the Confidential Information which, on the advice of the Receiving Party's legal counsel, the Receiving Party is legally required to disclose and, upon the Disclosing Party's request, shall use commercially reasonable efforts to obtain assurances from the applicable court or agency that such Confidential Information will be afforded confidential treatment.

ARTICLE XI
REPRESENTATIONS AND WARRANTIES

Section 11.01 Each party represents and warrants to the other party that:

(a) it is duly organized, validly existing and in good standing as a corporation or other entity as represented herein under the laws and regulations of its jurisdiction of incorporation, organization or chartering;

(b) it has the full right, power and authority to enter into this Agreement, to grant the rights and licenses granted hereunder and to perform its obligations hereunder;

(c) the execution of this Agreement by its representative whose signature is set forth at the end hereof has been duly authorized by all necessary corporate action of the party;

(d) when executed and delivered by such party, this Agreement will constitute the legal, valid and binding obligation of such party, enforceable against such party in accordance with its terms; and

(e) it will comply at all times with the provisions of applicable Laws of the United States (and, as applicable, analogous such laws in any other territories where regulatory approval is sought) regarding debarment and will upon request certify in writing to the other parties that none of its employees nor any person providing services in connection with this Agreement have been debarred under the provisions of such laws.

Section 11.02 Ximedica represents and warrants to OptiNose that:

(a) it shall perform the services under this Agreement using personnel of required skill, experience and qualifications and in a professional and workmanlike manner in accordance with generally recognized industry standards for similar services and shall devote adequate resources to meet its obligations under this Agreement;

(b) it is in compliance with, and shall perform under this Agreement in compliance with, all applicable Laws;

(c) OptiNose will receive good and valid title to all Deliverables, free and clear of all encumbrances and liens of any kind;

(d) the LDSAs provided under this Agreement shall be manufactured and delivered in strict compliance with the terms of this Agreement, including (i) the Specifications; (ii) all Laws relating to the manufacture of the LDSAs, including without limitation the FD&C Act and cGMPs; and (iii) the Quality Agreement;

(e) the LDSAs provided under this Agreement (excluding the OptiNose Components) shall be free from material defects in workmanship and materials and shall meet or satisfy all of the applicable Specifications at time of shipment to OptiNose; provided that "time of shipment" means that Ximedica has completed all manufacturing activities with respect to the applicable LDSAs, all required documentation relating to such LDSAs has been received by OptiNose and OptiNose has approved the shipment of such LDSAs; and

(f) none of Ximedica's performance under this Agreement, Intellectual Property Rights owned by Ximedica or assigned to OptiNose hereunder, nor the Deliverables provided hereunder infringe any Intellectual Property Right of any third party; and

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

(g) as of the date hereof, there are no pending or, to Ximedica's knowledge, threatened claims, litigation or other proceedings pending against Ximedica by any third party, in each case, excluding any infringement or claim, litigation or other proceedings to the extent arising out of (x) any OptiNose Information or any instruction, information, designs, specifications or other materials provided by OptiNose to Ximedica, (y) use of the Deliverables in combination with any materials or equipment not supplied or specified by Ximedica, if the infringement would have been avoided by the use of the Deliverables not so combined, and (z) any modifications or changes made to the Deliverables by or on behalf of any Person other than Ximedica.

Section 11.03 EXCEPT FOR THE EXPRESS WARRANTIES IN THIS AGREEMENT, EACH PARTY HEREBY DISCLAIMS ALL WARRANTIES, EITHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE UNDER THIS AGREEMENT, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

ARTICLE XII
INDEMNIFICATION

Section 12.01 Ximedica shall defend, indemnify and hold harmless OptiNose and OptiNose's Affiliates and their officers, directors, employees, agents, successors and permitted assigns (each, an "**OptiNose Indemnitee**") from and against any and all Losses arising out of or resulting from any third party claim, suit, action or proceeding (each, an "**Action**") to the extent arising out of or resulting from:

(a) bodily injury, death of any person or damage to real or tangible, personal property resulting from the willful, fraudulent or negligent acts or omissions of Ximedica or Ximedica Personnel;

(b) Ximedica's breach of any representation, warranty or obligation of Ximedica set forth in this Agreement; and

(c) a claim that any of Ximedica's performance under this Agreement or OptiNose's receipt or use of the LDSAs or Deliverables infringes any Intellectual Property Right of a third party; *provided, however*, that Ximedica's liability under this Section 12.01(c) shall be reduced to the extent any Loss is attributable to any OptiNose Information or any instruction, information, designs, or specifications provided or approved by OptiNose in writing to Ximedica.

Section 12.02 OptiNose shall defend, indemnify and hold harmless Ximedica and Ximedica's Affiliates and their officers, directors, employees, agents, successors and permitted assigns from and against all Losses arising out of or resulting from any third party Action to the extent arising out of or resulting from:

(a) bodily injury, death of any person or damage to real or tangible, personal property resulting from the willful, fraudulent or negligent acts or omissions of OptiNose; and

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

(b) OptiNose's breach of any representation, warranty or obligation of OptiNose in this Agreement.

Section 12.03 The party seeking indemnification hereunder shall promptly notify the indemnifying party in writing of any Action and cooperate with the indemnifying party [***]. The indemnifying party shall immediately take control of the defense and investigation of such Action and shall employ counsel of its choice to handle and defend the same [***]. The indemnifying party shall not settle any Action in a manner that adversely affects the rights of the indemnified party without the indemnified party's prior written consent. The indemnified party's failure to perform any obligations under this Section 12.03 shall not relieve the indemnifying party of its obligations under this Section 12.03 except to the extent that the indemnifying party can demonstrate that it has been materially prejudiced as a result of such failure. The indemnified party may participate in and observe the proceedings [***].

ARTICLE XIII
LIMITATION OF LIABILITY

Section 13.01 EXCEPT AS OTHERWISE PROVIDED IN SECTION 13.02, IN NO EVENT WILL EITHER PARTY BE LIABLE TO THE OTHER OR TO ANY THIRD PARTY FOR ANY LOSS OF USE, REVENUE OR PROFIT OR FOR ANY CONSEQUENTIAL, INCIDENTAL, INDIRECT, EXEMPLARY, SPECIAL OR PUNITIVE DAMAGES WHETHER ARISING OUT OF BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE) OR OTHERWISE, WHETHER OR NOT SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Section 13.02 The exclusions and limitations in Section 13.01 shall not apply to:

(a) damages or other liabilities arising out of or relating to a party's failure to comply with its obligations under Article IX (Intellectual Property Rights; Ownership);

(b) damages or other liabilities arising out of or relating to a party's failure to comply with its obligations under Article X (Confidentiality);

(c) a party's indemnification obligations under Article XII (Indemnification); and

(d) damages or other liabilities arising out of or relating to a party's gross negligence, willful misconduct or intentional acts.

ARTICLE XIV
TERM

Section 14.01 This Agreement shall commence as of the Effective Date and shall continue for a period of not less than two (2) years from the date that OptiNose receives FDA approval for the commercial sale of the Finished Product (the "**Term**"), unless sooner terminated pursuant to Article XV.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

ARTICLE XV
TERMINATION; EFFECT OF TERMINATION

Section 15.01 OptiNose, in its sole discretion, may terminate this Agreement:

(a) at any time without cause, by providing at least [***] prior written notice to Ximedica;

(b) by providing Ximedica written notice if Ximedica fails an inspection or suffers a hold, 483, warning letter, or other disciplinary action by the FDA or any other government authority and Ximedica fails to cure such inspection shortcoming, or remove or resolve such hold or disciplinary action in such a manner that the Ximedica facility passes re-inspection by the FDA or government authority and/or is free of the hold or disciplinary action, in good standing with FDA or such other government authority, and is lawfully able to and does resume timely and conforming manufacture and delivery of OptiNose's LDSAs requirements in accordance with this Agreement within thirty days of such original inspection, or imposition of the hold or disciplinary action; or

(c) by providing Ximedica written notice if Ximedica fails to gain recommendation for approval by FDA to manufacture LDSAs in accordance with this Agreement (with such recommendation being either unqualified or with any qualifications resolved to FDA's acknowledged satisfaction) in a manner that does not delay either (i) approval by the FDA of the New Drug Application filed by OptiNose for Finished Product with the FDA, or (ii) the ability of OptiNose to begin commercial manufacture of LDSAs immediately upon such approval by the FDA.

Section 15.02 Either party may terminate this Agreement, effective upon written notice to the other party (the "**Defaulting Party**"), if the Defaulting Party:

(a) materially breaches this Agreement, and such breach is incapable of cure, or with respect to a material breach capable of cure, the Defaulting Party does not cure such breach within [***] days after receipt of written notice of such breach.

(b) (i) becomes insolvent or admits its inability to pay its debts generally as they become due; (ii) becomes subject, voluntarily or involuntarily, to any proceeding under any domestic or foreign bankruptcy or insolvency law, which is not fully stayed within seven business days or is not dismissed or vacated within forty-five days after filing; (iii) is dissolved or liquidated or takes any corporate action for such purpose; (iv) makes a general assignment for the benefit of creditors; or (v) has a receiver, trustee, custodian or similar agent appointed by order of any court of competent jurisdiction to take charge of or sell any material portion of its property or business.

Section 15.03 Upon expiration or termination of this Agreement for any reason:

(a) OptiNose shall have the right at any time after a notice of termination has been given or an event has occurred which, with the passage of time, will cause this Agreement to terminate to

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require Ximedica, as soon as reasonably practicable and in no more than [***] business days from the effective date of termination, to make available for removal by OptiNose or its designee [***]: (i) all LDSAs, all Material, all partially completed LDSAs, all Deliverables and all OptiNose Information [***], and (ii) all OptiNose Equipment. All of the foregoing items for removal shall be made available at the facility, [***], claims and encumbrances, and Ximedica shall provide [***] cooperation and assistance to OptiNose upon OptiNose's written request [***] in transitioning the manufacture of LDSAs and related services under this Agreement to an alternate supplier. [***].

(b) Each party shall (i) return to the other party all documents and tangible materials (and any copies) containing, reflecting, incorporating or based on the other party's Confidential Information, (ii) if the other party requests, use [***] efforts to permanently erase all of the other party's Confidential Information from its computer systems, and (iii) certify in writing to the other party that it has complied with the requirements of this clause; *provided, however*, that OptiNose may retain copies of any Confidential Information of Ximedica incorporated in the Deliverables or to the extent necessary to allow it

to make full use of the LDSAs and any Deliverables; and *provided further, however,* that Ximedica shall retain such documents and tangible materials as are required to be maintained by Ximedica under Law.

(c) In no event shall OptiNose be liable for [***].

Section 15.04 The rights and obligations of the parties set forth in this Section 15.04 and Article I, Sections 5.01, 5.03, 5.04, 5.05, 5.06 and 6.01(e), Article IX, Article X, Article XI, Article XII, Article XIII, Section 15.03, Article XVI, Article XVII, and Article XIX, and any right or obligation of the parties in this Agreement which, by its nature, should survive termination or expiration of this Agreement, will survive any such termination or expiration of this Agreement. For purposes of clarity, in no event shall any termination or expiration of this Agreement excuse either party from any breach or violation of this Agreement or other obligation that occurred prior to such termination or expiration and, in each such case, full legal and equitable remedies shall remain available to address such issues.

ARTICLE XVI
INSURANCE

Section 16.01 At all times during the Term and for a period of at least [***] thereafter, Ximedica shall procure and maintain, at its sole cost and expense, at least the following types and amounts of insurance coverage:

(a) Commercial General Liability with limits no less than $[***] per occurrence, including bodily injury and property damage and products, which policy will include contractual liability coverage insuring the activities of Ximedica under this Agreement;

(b) Worker's Compensation with employer's liability limits no less than $[***]; and

(c) Errors and Omissions and/or Professional Liability with limits no less than $[***] per occurrence.

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Section 16.02 All insurance policies required pursuant to this Article XVI shall:

(a) be issued by an insurance company or insurance companies having an A.M. Best Rating of [***] or better;

(b) provide that such insurance be primary insurance and any similar insurance in the name of and/or for the benefit of OptiNose shall be excess and non-contributory; provided, however, this provision shall not apply to the insurance required by Section 16.01(b); and

(c) name OptiNose and OptiNose's Affiliates, including, in each case, all successors and permitted assigns, as Additional Insureds; provided, however, this provision shall not apply to the insurance required by Section 16.01(b).

Section 16.03 Upon the written request of OptiNose, Ximedica shall provide OptiNose with copies of the certificates of insurance and policy endorsements for all insurance coverage required by this Article XVI, and shall not do anything to invalidate such insurance. This Article XVI shall not be construed in any manner as waiving, restricting or limiting the liability of either party for any obligations imposed under this Agreement (including but not limited to, any provisions requiring a party hereto to indemnify, defend and hold the other harmless under this Agreement).

ARTICLE XVII
NON-SOLICITATION

Section 17.01 During the Term and for a period of [***] thereafter, neither party shall, directly or indirectly, in any manner solicit or induce for employment any person who performed any work under this Agreement who is then in the employment of the other party. A general advertisement or notice of a job listing or opening or other similar general publication of a job search or availability to fill employment positions, including on the internet, shall not be construed as a solicitation or inducement for the purposes of this Section 17.01, and the hiring of any such employees or independent contractor who freely responds thereto shall not be a breach of this Section 17.01.

Section 17.02 If either Ximedica or OptiNose breaches Section 17.01, the breaching party shall, on demand, pay to the non-breaching party a sum equal to [***] basic salary or the [***] that was payable by the claiming party to that employee, worker or independent contractor incurred by the non-breaching party in replacing such person.

ARTICLE XVIII
FORCE MAJEURE

Section 18.01 No party shall be liable or responsible to the other party, nor be deemed to have defaulted under or breached this Agreement, for any failure or delay in fulfilling

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or performing any term of this Agreement, when and to the extent such failure or delay is caused by or results from acts beyond the affected party's reasonable control, including, without limitation:

(a) acts of God;

(b) flood, fire or explosion;

(c) war, invasion, riot or other civil unrest;

(d) actions, embargoes or blockades in effect on or after the date of this Agreement;

(e) national or regional emergency;

(f) strikes, labor stoppages or slowdowns or other industrial disturbances; or

(g) compliance with any law or governmental order, rule, regulation or direction, or any action taken by a governmental or public authority, including but not limited to imposing an embargo, export or import restriction, quota or other restriction or prohibition, or failing to grant a necessary license or consent;

(each of the foregoing, a "**Force Majeure Event**"). A party whose performance is affected by a Force Majeure Event shall give notice to the other party, stating the period of time the occurrence is expected to continue and shall use [***] to end the failure or delay and minimize the effects of such Force Majeure Event.

Section 18.02 During the Force Majeure Event, the non-affected party may similarly suspend its performance obligations until such time as the affected party resumes performance.

Section 18.03 The non-affected party may terminate this Agreement if such failure or delay continues for a period of [***] days or more and, [***].

ARTICLE XIX
MISCELLANEOUS

Section 19.01 Each party shall, upon the reasonable request, promptly execute such documents and perform such acts as may be necessary to give full effect to the terms of this Agreement.

Section 19.02 The relationship between the parties is that of independent contractors. Nothing contained in this Agreement shall be construed as creating any agency, partnership, joint venture or other form of joint enterprise, employment or fiduciary relationship between the parties, and neither party shall have authority to contract for or bind the other party in any manner whatsoever.

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Section 19.03 Neither party shall issue or release any announcement, statement, press release or other publicity or marketing materials relating to this Agreement, or otherwise use the other party's trademarks, service marks, trade names, logos, symbols or brand names, in each case, without the prior written consent of the other party, except to the extent necessary pursuant to any applicable securities exchange rule.

Section 19.04 All notices, requests, consents, claims, demands, waivers and other communications hereunder shall be in writing and shall be deemed to have been given (a) when delivered by hand (with written confirmation of receipt); (b) when received by the addressee if sent by a nationally recognized overnight courier (receipt requested); or (c) on the third day after the date mailed, by certified or registered mail, return receipt requested, postage prepaid. Such communications must be sent to the respective parties at the addresses indicated below (or at such other address for a party as shall be specified in a notice given in accordance with this Section 19.04.)

If to Ximedica:

Ximedica, LLC
Attn: Chief Executive Officer
55 DuPont Drive
Providence, RI 02907

If to OptiNose:

OptiNose US, Inc.
Attn: Chief Executive Officer
1020 Stony Hill Road, Suite 300
Yardley, PA 19067

To OptiNose UK:
OptiNose UK, Ltd.
Hunts Rise
South Marston Park, Wiltshire
SN3 4TG, England
Attention: Chief Executive Officer

To OptiNose Norway:
OptiNose AS
Gaustadalléen 210349
Oslo, Norway
Attention: Chief Executive Officer

In each instance, with cc to:

OptiNose US, Inc.
Attn: Chief Legal Officer
1020 Stony Hill Road, Suite 300
Yardley, PA 19067

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

Section 19.05 For purposes of this Agreement, (a) the words "include," "includes" and "including" shall be deemed to be followed by the words "without limitation"; (b) the word "or" is not exclusive; and (c) the words "herein," "hereof," "hereby," "hereto" and "hereunder" refer to this Agreement as a whole. Unless the context otherwise requires, references herein: (x) to Sections and Exhibits refer to the Sections of, and Exhibits attached to, this Agreement; and (y) to a statute means such statute as amended from time to time and includes any successor legislation thereto and any regulations promulgated thereunder. This Agreement shall be construed without regard to any presumption or rule requiring construction or interpretation against the party drafting an instrument or causing any instrument to be drafted. The Schedules, Exhibits and Statements of Work referred to herein shall be construed with, and as an integral part of, this Agreement to the same extent as if they were set forth verbatim herein.

Section 19.06 This Agreement, together with all Exhibits and any other documents incorporated herein by reference, constitutes the sole and entire agreement of the parties to this Agreement with respect to the subject matter contained herein, and supersedes all prior and contemporaneous understandings and agreements, both written and oral, with respect to such subject matter. For purposes of clarity, this Agreement shall not supersede the development agreements and other related project work between the parties not otherwise covered by this Agreement.

Section 19.07 Neither party may assign, transfer or delegate any or all of its rights or obligations under this Agreement (including without limitation to any subcontractors), without the prior written consent of the other party, which consent shall not be unreasonably withheld or delayed; *provided, that*, upon prior written notice to the other party, either party may assign the Agreement to an Affiliate of such party or to a successor of all or substantially all of the assets of such party through merger, reorganization, consolidation or acquisition; provided further, that, notwithstanding the foregoing, Ximedica may not make such an assignment without OptiNose's prior written consent, not to be unreasonably withheld. No assignment shall relieve the assigning party of any of its obligations hereunder. Any attempted assignment, transfer or other conveyance in violation of the foregoing shall be null and void. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto and their respective successors and permitted assigns.

Section 19.08 This Agreement is for the sole benefit of the parties hereto and their respective successors and permitted assigns and nothing herein, express or implied, is intended to or shall confer upon any other Person any legal or equitable right, benefit or remedy of any nature whatsoever, under or by reason of this Agreement.

Section 19.09 The headings in this Agreement are for reference only and shall not affect the interpretation of this Agreement.

Section 19.10 This Agreement may only be amended, modified or supplemented by an agreement in writing signed by each party hereto. No waiver by any party of any of the provisions hereof shall be effective unless explicitly set forth in writing and signed by the

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party so waiving. Except as otherwise set forth in this Agreement, no failure to exercise, or delay in exercising, any rights, remedy, power or privilege arising from this Agreement shall operate or be construed as a waiver thereof; nor shall any single or partial exercise of any right, remedy, power or privilege hereunder preclude any other or further exercise thereof or the exercise of any other right, remedy, power or privilege.

Section 19.11 If any term or provision of this Agreement is invalid, illegal or unenforceable in any jurisdiction, such invalidity, illegality or unenforceability shall not affect any other term or provision of this Agreement or invalidate or render unenforceable such term or provision in any other jurisdiction. Upon such determination that any term or other provision is invalid, illegal or unenforceable, the parties hereto shall negotiate in good faith to modify this Agreement so as to effect the original intent of the parties as closely as possible in a mutually acceptable manner in order that the transactions contemplated hereby be consummated as originally contemplated to the greatest extent possible.

Section 19.12 This Agreement shall be governed by and construed in accordance with the internal laws of the State of Delaware without giving effect to any choice or conflict of law provision or rule (whether of the State of Delaware or any other jurisdiction) that would cause the application of Laws of any jurisdiction other than those of the State of Delaware. Any legal suit, action or proceeding arising out of or related to this Agreement provided hereunder may be instituted in the federal courts of the United States located in the State of Delaware or the courts of the State of Delaware, and each party irrevocably submits to the exclusive jurisdiction of such courts in any such suit, action or proceeding, service of process, summons, notice or other document by mail to such party's address set forth herein shall be effective service of process for any suit, action or other proceeding brought in any such court.

Section 19.13 Each party irrevocably and unconditionally waives any right it may have to a trial by jury in respect of any legal action arising out of or relating to this Agreement or the transactions contemplated hereby.

Section 19.14 Each party acknowledges that a breach by a party of Article IX (Intellectual Property Rights; Ownership) or Article X (Confidentiality) may cause the non-breaching party irreparable damages, for which an award of damages would not be adequate compensation and agrees that, in the event of such breach or threatened breach, the non-breaching party will be entitled to seek equitable relief, including a restraining order, injunctive relief, specific performance and any other relief that may be available from any court, in addition to any other remedy to which the non-breaching

party may be entitled at law or in equity. Such remedies shall not be deemed to be exclusive but shall be in addition to all other remedies available at law or in equity, subject to any express exclusions or limitations in this Agreement to the contrary.

Section 19.15 In the event that any action, suit, or other legal or administrative proceeding is instituted or commenced by either party hereto against the other party arising out of or related to this Agreement, the prevailing party shall be entitled to recover its reasonable attorneys' fees and court costs from the non-prevailing party.

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Section 19.16 This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall be deemed to be one and the same agreement. A signed copy of this Agreement delivered by e-mail or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original signed copy of this Agreement.

Section 19.17 [***].

[Signature Page Follows]

[***] Certain information in this document has been omitted and filed separately with the Securities and Exchange Commission. Confidential treatment has been requested with respect to the omitted portions.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first above written.

XIMEDICA, LLC

By: /s/ Craig Cameran
Name: Craig Cameran
Its: Chief Financial Officer

OPTINOSE US, INC.

By: /s/ Peter Miller
Name: Peter Miller
Its: Chief Executive Officer

OPTINOSE UK LTD.

By: /s/ Peter Miller
Name: Peter Miller
Its: Chief Executive Officer

OPTINOSE AS

By: /s/ Peter Miller
Name: Peter Miller
Its: Chief Executive Officer

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EXHIBIT A

PRICING

The per unit price ("**Price**") of LDSAs shall be as set forth on the attached.

[***]

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EXHIBIT B

OPTINOSE COMPONENTS

[***]

Exhibit 16.1

June 23, 2017

Securities and Exchange Commission
100 F Street, N.E.
Washington, DC 20549

Commissioners:

We have read the statements made by OptiNose, Inc. (copy attached), which we understand will be filed with the Securities and Exchange Commission, pursuant to Item 11 of Form S-1, as part of the Form S-1 of OptiNose, Inc. dated June 23, 2017. We agree with the statements concerning our Firm in such Form S-1.

Very truly yours,

/s/ PricewaterhouseCoopers LLP

PricewaterhouseCoopers LLP

Philadelphia, PA
June 23, 2017

Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

On November 7, 2016, we dismissed PricewaterhouseCoopers LLP, or PwC, as our independent auditor. The dismissal was approved by the audit committee of our Board of Directors.

The report of PwC on our consolidated financial statements as of and for the fiscal year ended December 31, 2015 did not contain any adverse opinion or disclaimer of opinion, nor was it qualified or modified as to uncertainty, audit scope or accounting principles.

During the fiscal year ended December 31, 2015, and the subsequent interim period through November 7, 2016, (i) there were no disagreements with PwC on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedures, which disagreements, if not resolved to PwC's satisfaction, would have caused PwC to make reference to the subject matter of the disagreements in their report on the financial statements for such fiscal years, and (ii) there were no "reportable events," as that term is described in Item 304(a)(1)(v) of Regulation S-K.

On December 6, 2016, we engaged Ernst & Young LLP, or EY, to serve as our independent registered public accounting firm, to audit the fiscal year ended December 31, 2016, as well as to reaudit the fiscal year ended December 31, 2015, which had previously been audited by PwC. The engagement of EY has been approved by our board of directors. During the two most recent fiscal years, neither we, nor anyone acting on our behalf, consulted with EY regarding either: (i) the application of accounting principles to a specified transaction, either completed or proposed, or the type of audit opinion that might be rendered on our consolidated financial statements, and no written report nor oral advice was provided by EY, or (ii) any matter that was either the subject of a disagreement, as that term is defined in Item 304(a)(1)(iv) of Regulation S-K, or a reportable event, as that term is defined in Item 304(a)(1)(v) of Regulation S-K.

We requested that PwC furnish us with a letter addressed to the SEC stating whether it agrees with the above statements. A copy of the letter dated June 23, 2017, is filed as an exhibit to the registration statement of which this prospectus forms a part.

Exhibit 21.1

LIST OF SUBSIDIARIES

Subsidiary	Ownership Percentage	Jurisdiction of Incorporation or Organization
OptiNose US, Inc.	100%	Delaware
OptiNose AS	100%	Norway
OptiNose UK, Ltd.	100%	United Kingdom

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption “Experts” and to the use of our report dated June 23, 2017 (except for the last sentence of Note 14, as to which the date is September 18, 2017) in the Registration Statement (Form S-1) and the related Prospectus of OptiNose, Inc. dated September 18, 2017.

/s/ Ernst & Young LLP

Philadelphia, Pennsylvania
September 18, 2017