As confidentially submitted to the Securities and Exchange Commission on April 10, 2018.

This draft registration statement has not been publicly filed with the Securities and Exchange Commission and all information herein remains strictly confidential.

Registration No. 333-

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

FORM S-1
REGISTRATION STATEMENT
Under
The Securities Act of 1933

ALLAKOS INC.
(Exact name of Registrant as specified in its charter)

Delaware	**2834**	**45-4798831**
(State or other jurisdiction of incorporation or organization)	**(Primary Standard Industrial Classification Code Number)**	**(I.R.S. Employer Identification Number)**

75 Shoreway Road, Suite A
San Carlos, California 94070
(650) 597-5002
(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

Robert Alexander, Ph.D.
President and Chief Executive Officer
Allakos Inc.
75 Shoreway Road, Suite A
San Carlos, California 94070
(650) 597-5002
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Kenneth A. Clark **Tony Jeffries** **Jennifer Knapp** **Wilson Sonsini Goodrich & Rosati, P.C.** **650 Page Mill Road** **Palo Alto, California 94304** **(650) 493-9300**	**Adam Tomasi, Ph.D.** **Chief Operating Officer and Chief Financial Officer** **Allakos Inc.** **75 Shoreway Road, Suite A** **San Carlos, California 94070** **(650) 597-5002**	**Alan F. Denenberg** **Stephen Salmon** **Davis Polk & Wardwell LLP** **1600 El Camino Real** **Menlo Park, California 94025** **(650) 752-2004**

Approximate date of commencement of proposed sale to the 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, check the following box. ☐

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

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. ☐

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. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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	☐	Accelerated filer	☐
Non-accelerated filer	☒ (Do not check if a smaller reporting company)	Smaller reporting company	☐
		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)(2)**	**Amount of Registration Fee**
Common Stock, $0.001 par value per share	$	$

(1) Includes offering price of any additional shares of common stock that the underwriters have the option to purchase.
(2) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended.

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 of 1933, as amended, 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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The information in this preliminary prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell nor does it seek an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION. DATED , 2018

Shares

COMMON STOCK

This is an initial public offering of shares of common stock by Allakos Inc.

Prior to this offering, there has been no public market for our common stock. It is currently estimated that the initial public offering price will be between $ and $ per share.

We intend to apply to list our common stock on under the symbol "ALLK."

We are an "emerging growth company" as defined under the federal securities laws and, as such, have elected to comply with certain reduced reporting requirements for this prospectus and may elect to do so in future filings.

Investing in our common stock involves risks. See the section titled "Risk Factors" beginning on page 17 to read about factors you should consider before buying shares of our common stock.

Neither the Securities and Exchange Commission nor any other regulatory body has approved or disapproved of these securities, or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

	Per Share	Total
Initial public offering price	$	$
Underwriting discounts and commissions(1)	$	$
Proceeds, before expenses, to us	$	$

(1) See the section titled "Underwriting" for a description of the compensation payable to the underwriters.

We have granted the underwriters an option to purchase up to additional shares of our common stock. The underwriters can exercise this option at any time within 30 days after the date of this prospectus.

The underwriters expect to deliver the shares of common stock to purchasers on or about , 2018.

Goldman Sachs & Co. LLC **Jefferies**

Prospectus dated , 2018.

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Through and including , 2018 (the 25th day after the date of this prospectus), all dealers effecting transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

We and the underwriters have not authorized anyone to provide you any information other than that contained in this prospectus or in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We and the underwriters are not making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus is accurate only as of the date on the front cover of this prospectus. Our business, financial condition, results of operations and prospects may have changed since that date.

For investors outside of the United States: We have not and the underwriters have not 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 the United States. Persons outside of the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of common stock and the distribution of this prospectus outside of the United States.

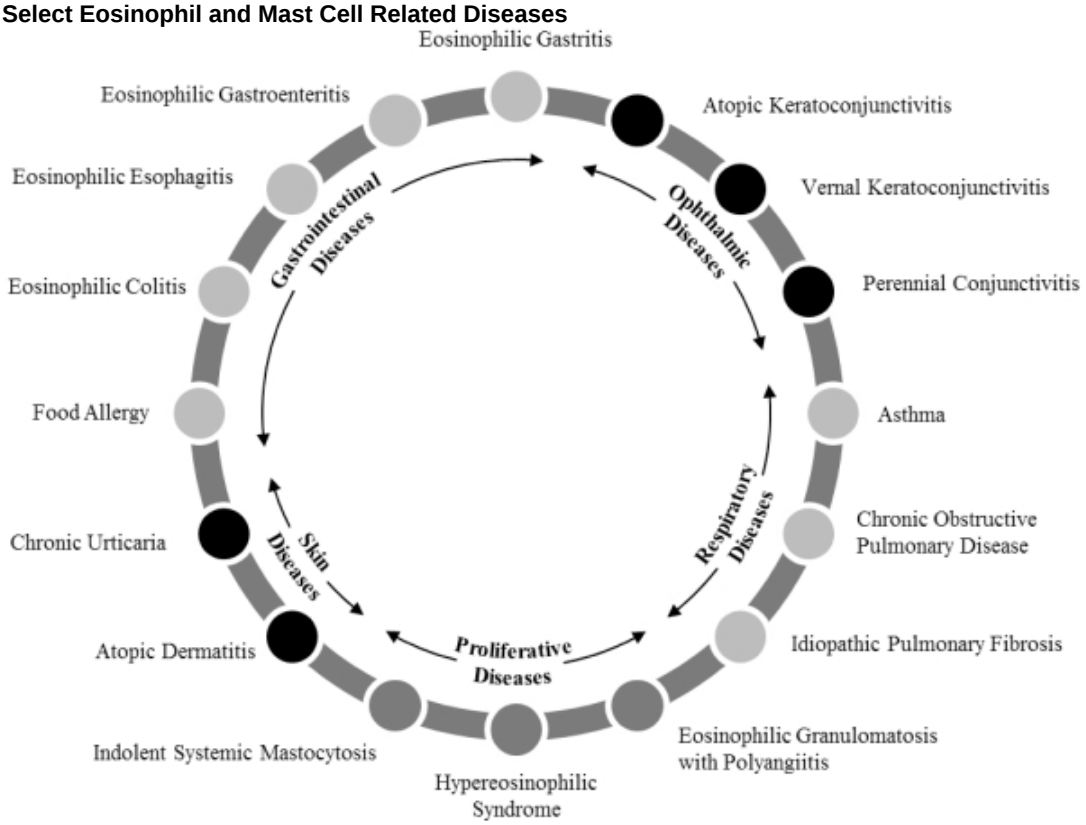
PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this prospectus and is qualified in its entirety by the more detailed information and financial statements included elsewhere in this prospectus. It does not contain all of the information that may be important to you and your investment decision. You should carefully read this entire prospectus, including the sections titled "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations," and our financial statements and related notes. In this prospectus, unless context requires otherwise, references to "we," "us," "our," "Allakos," or "the Company" refer to Allakos Inc.

Overview

We are a clinical stage biotechnology company developing AK002, our wholly owned monoclonal antibody that has demonstrated pharmacodynamic activity and promising clinical efficacy in Phase 1 trials. AK002 selectively targets both eosinophils and mast cells, which are types of white blood cells that are widely distributed in the body and play a central role in the inflammatory response. Inappropriately activated eosinophils and mast cells have been identified as key drivers in a number of severe diseases affecting the gastrointestinal tract, eyes, skin, lungs and other organs. As such, AK002 has the potential to treat a large number of severe diseases. We are initially developing AK002 for the treatment of eosinophilic gastritis ("EG"), indolent systemic mastocytosis ("ISM"), chronic urticaria ("CU") and severe allergic conjunctivitis ("SAC"), and plan to explore additional indications in the future.

Figure A. Select Eosinophil and Mast Cell Related Diseases

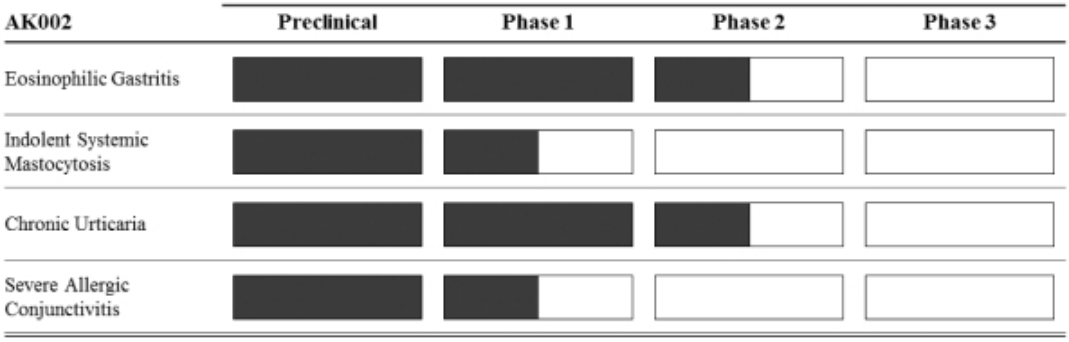


Despite the knowledge that eosinophils and mast cells drive many pathological conditions, there are no approved therapies that selectively target eosinophils and mast cells. Current treatments for the diseases we are pursuing are non-selective and often come with serious side effects that make them unsuitable for long term use. AK002 binds to Siglec-8, an inhibitory receptor found on eosinophils and mast cells, which represents a novel way to selectively deplete or inhibit these important immune cells and thereby resolve inflammation. We believe AK002 is the only Siglec-8 targeting antibody currently in clinical development and has the potential to be safer and more effective than current treatments.

We have shown that AK002 depletes eosinophils and inhibits mast cell activation in Phase 1 clinical trials. In a randomized, double-blind, placebo-controlled Phase 1 trial in 51 healthy volunteers, all doses of AK002 resulted in complete depletion of blood eosinophils within one hour after administration. The duration of depletion was dose-dependent, with a single dose of 1.0 mg/kg of AK002 suppressing eosinophils for up to 84 days. In addition, in the single dose portion of a Phase 1 trial in 13 patients with ISM, a disorder characterized by an increased number of mast cells throughout the body and symptoms related to mast cell activation, patients reported marked improvement in ISM mast cell related symptoms and blood eosinophils were depleted.

We are currently testing AK002 in a double-blind, placebo-controlled Phase 2 trial in patients with EG with or without eosinophilic gastroenteritis (“EGE”). EG and EGE are severe eosinophilic inflammatory diseases of the stomach and small intestine, respectively. AK002 has received orphan drug designation for EG and EGE from the U.S. Food and Drug Administration (“FDA”) and we expect to report top-line data from the Phase 2 trial in the second quarter of 2019. As a follow up to the single dose portion of the Phase 1 trial in patients with ISM, we are also testing AK002 in an ongoing six month multi-dose Phase 1 trial in ISM patients. Further, AK002 is being tested in an open-label Phase 2 trial in patients with CU and in a Phase 1 trial in patients with SAC. CU is a group of inflammatory skin diseases that are caused by the inappropriate activation of mast cells in the skin. SAC is a group of allergic eye diseases that are caused by eosinophil and mast cell driven inflammation in the tissues lining the eyes and eyelids. We expect to report top-line data from these three trials in ISM, CU and SAC patients in the first quarter of 2019. The status of our clinical trials is shown below.

Figure B. AK002 Development Status



We have prioritized our AK002 development efforts based on our assessment of the probability of clinical and regulatory success, unmet medical need and potential market opportunity. We have assembled a team with a proven track record and deep experience in antibody discovery and in clinical development, commercialization, operations and finance from companies such as Genentech, Gilead, Intermune, Novo Nordisk, Pfizer, ZS Pharma and others. Since our inception, we have raised private

capital from investors including Alta Partners, RiverVest Partners, Roche Ventures, 3x5 Special Opportunity Partners, New Enterprise Associates, RedMile, Partner Fund Management, Samsara and RockSprings.

Understanding the Foundation of Our Approach

Background on Eosinophils, Mast Cells and Siglec-8

Eosinophils and mast cells are involved in many inflammatory conditions and therefore represent attractive drug targets. Eosinophils and mast cells can respond to signals from allergens, tissues, bacteria, viruses and also cells of the innate and adaptive immune system. In response, they release a large variety of mediators which can result in tissue damage, fibrosis and the recruitment and activation of other innate and adaptive immune cells. Their ability to respond to signals from multiple cell types and the diverse array of mediators that they produce place eosinophils and mast cells at the center of multiple aspects of the inflammatory response.

Eosinophils are normally present in the blood and tissues, especially in the mucosal linings of the respiratory and gastrointestinal tract. However, they can be recruited to any site of the body in the setting of inflammation. Mast cells reside within the connective tissue of a variety of tissues and all vascularized organs, often located in close proximity to blood vessels, nerves and lymphatics. Sites include the dermis, gut mucosa and submucosa, conjunctiva and pulmonary alveoli and airways. As a result of their widespread location and potent inflammatory activity, eosinophils and mast cells have been identified as key drivers in a number of severe diseases of the gastrointestinal tract, eyes, skin, and lungs, as well as diseases which affect multiple organ systems.

Siglec-8 is an inhibitory receptor located selectively on eosinophils, mast cells and, to a lesser extent, on basophils. Because Siglec-8 is expressed in high abundance only on eosinophils and mast cells, it presents a novel way to selectively target these important immune cells. As an inhibitory receptor, the natural function of Siglec-8 is to counteract activating signals within eosinophils and mast cells that lead to an inflammatory response. By binding to Siglec-8, AK002 is able to selectively target eosinophils and mast cells to resolve inflammation.

Our Strategy

AK002 has shown pharmacodynamic activity in humans and a broad array of animal disease models of eosinophilic and mast cell driven diseases. We have prioritized our development efforts based on our assessment of the probability of clinical and regulatory success, unmet medical need and potential market opportunity. We have chosen to focus our wholly-owned AK002 program initially on four indications: EG, ISM, CU and SAC. The key elements of our strategy are to:

- ***Rapidly advance AK002 through clinical development in EG.*** AK002 has secured orphan drug designation for the treatment of EG and EGE with the FDA. We have completed a Phase 1 trial in healthy volunteers. In this trial, AK002 exhibited clear signs of pharmacodynamic activity by depleting blood eosinophils as soon as one hour after dosing. We are conducting a Phase 2 trial in patients with EG with or without EGE. We believe this trial, if positive, in conjunction with a future Phase 3 trial, will serve as the basis for demonstrating safety and efficacy in our biologics license application (“BLA”) and market authorization application (“MAA”) submissions.
- ***Develop AK002 for other EGIDs.*** EG is part of a group of related diseases called eosinophilic gastrointestinal diseases (“EGIDs”). These include EG, EGE and eosinophilic

colitis. EGIDs share the common pathology of tissue inflammation caused by the presence of elevated numbers of eosinophils. If AK002 shows activity in EG, we expect to conduct clinical trials of AK002 in these related conditions.

- ***Expand opportunity to additional eosinophilic and mast cell driven conditions.*** We are currently conducting clinical trials with AK002 in other eosinophil and mast cell driven diseases, including two Phase 1 trials in patients with ISM and SAC and a Phase 2 trial in patients with CU. Patients in the single ascending dose portion of the ISM trial reported improvements in mast cell related symptoms, and one patient with cholinergic urticaria showed disease resolution for approximately four weeks following a single 0.3 mg/kg dose. Should these clinical trials confirm the activity of AK002 in these indications, we plan to continue to develop AK002 in these indications.
- ***Build commercial capability and retain rights in key markets.*** If AK002 receives regulatory approval, we intend to retain the rights to it in key markets, and plan to commercialize AK002 in both the United States and Europe through a specialty sales force. EG and other EGIDs, ISM, CU and SAC are severe diseases which lack effective treatments. We believe a significant market opportunity for AK002 exists in each of these diseases.
- ***Coordinate clinical and manufacturing process development.*** AK002 has been produced under current good manufacturing practices at commercial scale utilizing the commercial process at Lonza Sales AG ("Lonza"), a contract development manufacturing organization. We have signed an agreement with Lonza for BLA activities.

AK002 Clinical Development Plan

AK002 was designed to take advantage of the selective expression pattern and inhibitory function of Siglec-8, an inhibitory receptor found on eosinophils, mast cells and, to a lesser extent, on basophils. AK002 is a humanized antibody that binds to Siglec-8 with high affinity (bivalent binding avidity (K_D) = 17 pM determined by surface plasmon resonance analysis). The high expression level of Siglec-8 on eosinophils and mast cells allows AK002 to selectively deplete eosinophils and inhibit mast cells. AK002 is a non-fucosylated IgG1 antibody engineered to have potent antibody-dependent cellular cytotoxicity ("ADCC"). ADCC is a mechanism whereby the binding of an antibody like AK002 triggers an effector cell of the immune system (usually a natural killer ("NK") cell) to destroy the antibody-bound cell. This provides AK002 with an additional mechanism to deplete eosinophils present in blood, where NK cells also reside. As a result of these dual modes of action, AK002 has been shown to deplete eosinophils in blood and tissue, and to inhibit the release of inflammatory mediators from mast cells.

AK002 has demonstrated activity in a broad array of animal disease models of eosinophilic and mast cell-driven diseases. Consistent with these experiments, human trials have shown that AK002 depletes blood eosinophils and inhibits mast cell function. Across the healthy volunteer and ISM Phase 1 trials, 61 patients have received AK002 to date. AK002 has generally been well tolerated.

Eosinophilic Gastritis and Eosinophilic Gastrointestinal Disorders

Disease Overview

EGIDs are chronic inflammatory disorders that share a similar eosinophilic driven inflammation that occurs along different segments of the gastrointestinal ("GI") tract. EG is a rare disease that is characterized by chronic inflammation due to patchy or diffuse infiltration of eosinophils into layers of the stomach. EG can occur with eosinophilia isolated to the stomach or often in combination with

eosinophilia of the small intestine. The estimated prevalence of EG in the United States is approximately 20,000 to 25,000 patients, and the estimated prevalence of EGE in the United States is approximately 25,000 patients, and we believe these diseases may be significantly underdiagnosed.

It is believed that EG and other EGIDs arise in some patients from food allergies or other allergens that cause a hypersensitivity reaction that leads to recruitment of eosinophils to the GI tract. The gastrointestinal symptoms are believed to be due to the release of inflammatory mediators from activated eosinophils. Mast cells are also elevated and believed to play a role. Elevated serum immunoglobulin E ("IgE") levels and food-specific IgE are correlated with EG in some patients and provide evidence for the allergy hypothesis and mast cell involvement. Symptoms commonly include abdominal pain, nausea, vomiting, diarrhea, malnutrition and weight loss.

Clinical Results

AK002 was tested in a randomized, double-blind, placebo-controlled, dose-escalating Phase 1 trial conducted in Melbourne, Australia. 51 healthy volunteers were randomized to receive doses of AK002 (0.001, 0.003, 0.01, 0.03, 0.1, 0.3, or 1.0 mg/kg) or placebo. The primary endpoints of the trial were safety and tolerability. The secondary endpoints included pharmacokinetic and pharmacodynamic ("PK/PD") measurements, including changes in the absolute peripheral blood counts of eosinophils.

All doses of AK002 tested resulted in complete depletion of blood eosinophils one hour after administration, clearly demonstrating the pharmacodynamic activity of AK002. The duration of depletion was dose-dependent with a single dose of 1 mg/kg of AK002 suppressing eosinophils for up to 84 days. AK002's half-life was determined to be 18 days. In the multi-dose portion of the trial, patients received monthly doses of 0.3 mg/kg of AK002. Monthly administrations of this dose provided sustained eosinophil depletion for the duration of dosing.

Across the healthy volunteer and ISM Phase 1 trials, 61 subjects have received AK002 at single doses ranging from 0.0003 to 1.0 mg/kg and multiple doses of 0.3 to 3.0 mg/kg. These subjects received up to six doses of AK002 given monthly for six months. AK002 has generally been well tolerated in our clinical trials. The most common adverse event has been the occurrence of mild to moderate infusion-related reactions ("IRRs") (flushing, feeling of warmth, headache, nausea and dizziness), which occurred mostly during the first infusion and diminished or did not occur on subsequent infusions.

There were no clinically significant effects of AK002 identified in vital signs, ECGs, clinical laboratory parameters (including hematology, clinical chemistry and urinalysis) or physical examinations. In both trials, there was a transient decrease in lymphocyte count after the AK002 infusion (resolving within one day), as seen with other monoclonal antibodies, that was not associated with any adverse event. Sustained depletion of eosinophils was also observed, consistent with the mechanism of action of AK002.

Development Plan

AK002 has received orphan drug designation in the United States for the treatment of EG and EGE. We have initiated a randomized, double-blind, placebo-controlled Phase 2 trial with AK002 in patients with EG with or without EGE. The trial will enroll approximately 60 patients with active, moderate to severe, biopsy-confirmed EG (>30 eosinophils/hpf in 5 hpf), and will randomize patients 1:1:1 to receive: (a) four monthly doses of 0.3 mg/kg AK002, (b) 0.3 mg/kg for the first month followed by three doses of 1.0 mg/kg AK002 given monthly, or (c) monthly placebo. The primary endpoint is the

reduction in gastric eosinophils post-treatment with AK002. We have developed a proprietary daily Patient Reported Outcome ("PRO") questionnaire to be used to assess the change in EG patient symptoms, such as abdominal pain, cramping, nausea/vomiting and diarrhea, in our clinical trials. The PRO was developed based on published guidance from the FDA on the development of PRO instruments, and is expected to be used to help determine safety and efficacy in future clinical trials.

We anticipate that a number of EG patients enrolled in the trial will also have EGE or eosinophilic esophagitis ("EoE"). If sufficient patients with EoE and EGE are enrolled in the trial, it may be possible to evaluate response to treatment with AK002 in these diseases as well. Patients completing the randomized portion of the trial will be eligible to enroll in a nine month safety exposure trial. Top-line data from the Phase 2 trial are expected during the second quarter of 2019. Based on discussions with the FDA, we believe that this Phase 2 trial, if successful, and a single Phase 3 trial, if successful, may be sufficient for regulatory approval of AK002 in EG.

Indolent Systemic Mastocytosis

Disease Overview

Indolent systemic mastocytosis ("ISM") is a rare disease characterized by the clonal proliferation and accumulation of mast cells in the bone marrow, respiratory and gastrointestinal tracts, and organs such as the skin, liver, spleen and brain. Common symptoms include pruritus, flushing, headache, cognitive impairment, fatigue, diarrhea, gastrointestinal cramps, hypotension and skin lesions, as well as an increased risk for osteoporosis and anaphylaxis, which in some cases can be life threatening. The symptoms of ISM are attributed to mast cell activation and the systemic release of mediators. Approximately 30,000 patients in the United States suffer from ISM.

Clinical Results

AK002 is being evaluated in an open-label, single and multiple ascending dose Phase 1 trial in patients with ISM. The single dose portion of this trial was completed during the second quarter of 2017, and the six month multi-dose portion is ongoing. In the single dose portion, 13 patients received single escalating doses of 0.0003 to 1.0 mg/kg, including three patients receiving 0.3 mg/kg and three patients receiving 1.0 mg/kg of AK002. Thus far in the multi-dose portion of the trial, six patients have received six doses of 1.0 mg/kg of AK002 given monthly and six patients have received 1.0 mg/kg for the first month and will be given monthly doses of 3.0 to 10 mg/kg of AK002 for five months. The primary endpoints of this trial are safety and tolerability. Key secondary endpoints are the PK/PD profile, peripheral counts of eosinophils and mastocytosis disease activity measures.

Results from the completed single dose portion of the trial indicate that AK002 has pharmacodynamic activity. Single doses of AK002 depleted blood eosinophils, with dose-dependent duration of depletion similar to the healthy volunteer trial. In addition, five out of six patients receiving 0.3 or 1.0 mg/kg reported improvements in symptoms, including diarrhea, abdominal pain, fatigue, pruritus, difficulty concentrating and headaches, and, in one patient, resolution of comorbid cholinergic urticaria (a disease that is believed to be caused by the activation of mast cells) for approximately four weeks. These encouraging initial reports of symptom improvement will be more fully explored in the multi-dose portion of the ISM trial.

The multi-dose portion of the trial is fully enrolled with 12 patients in two AK002 dosing cohorts. We have developed a proprietary daily PRO questionnaire to assess the change in ISM patient symptoms in our clinical trials. The PRO was based on published guidance from the FDA on the

development of PRO instruments, and is expected to be used to help determine safety and efficacy in future clinical trials. The questionnaire consists of nine symptom assessments, with each symptom being scored on a 0-10 scale and higher values representing greater symptom burden (total score 0-90 points).

Development Plan

AK002 has received orphan drug designation from the European Medicines Agency for the treatment of ISM. AK002 has been evaluated in an open-label, single-arm, dose-escalating Phase 1 trial in patients with ISM. The single dose portion of this trial was completed during the second quarter of 2017, and the multi-dose portion is ongoing in 12 patients. We expect to report data from this trial in the first quarter of 2019. Encouraging reports of symptom improvements in the single dose phase have been reported. If similar responses are observed in the ongoing multi-dose trial, we anticipate conducting a placebo controlled double blind trial to confirm activity.

Chronic Urticarias – Cholinergic Urticaria, Chronic Spontaneous Urticaria, Symptomatic Dermatographism

Disease Overview

Chronic urticarias (“CU”) are a group of skin conditions which are characterized by recurrent transient pruritic wheal and flare type skin reactions and, in roughly 40% of patients, angioedema. Symptoms include itching, redness, raised welts, burning, warmth, tingling and irritation of the skin. Patients with CU are often severely impaired in their quality of life, with negative effects on sleep, daily activities, school/work life and social interactions. The most common forms of CU are chronic spontaneous urticaria (“CSU”), cholinergic urticaria and symptomatic dermatographism. We estimate that approximately 200,000 patients with CSU, cholinergic urticaria and symptomatic dermatographism could be candidates for therapy with AK002.

Development Plan

We are conducting an open-label Phase 2 trial with AK002 in patients with urticaria. The trial is enrolling patients with different forms of urticaria: CSU (Xolair naïve and Xolair failures), cholinergic urticaria and symptomatic dermatographism. Approximately 40 patients are expected to be enrolled, and will receive six monthly doses of AK002. The primary endpoint of the trial is patient reported symptoms measured by the urticaria control test (“UCT”). Secondary endpoints include safety and tolerability, as well as other measures of itching, hives and swelling, including the urticaria activity score 7 (“UAS7”) and cholinergic UAS7. We expect to report data from this trial in the first quarter of 2019.

Severe Allergic Conjunctivitis

Disease Overview

Atopic keratoconjunctivitis (“AKC”), vernal keratoconjunctivitis (“VKC”) and perennial allergic conjunctivitis (“PAC”) are a set of allergic ocular conjunctival diseases primarily associated with an IgE-mediated hypersensitivity reaction. We are focused on the severe forms of these diseases, which are collectively referred to as severe allergic conjunctivitis (“SAC”). These conditions are often caused by airborne allergens, such as grass and tree pollens, coming into contact with the eyes, which induces IgE mediated mast cell degranulation and allergic inflammation. The inflammatory mediators released by the mast cell result in inflammation and the infiltration of eosinophils, neutrophils and other immune

cells. Symptoms include itching, hyperemia, light sensitivity (photophobia), pain, eye discharge and the sensation of having a foreign body in the eye. These symptoms can affect quality of life and daily activities, such as reading, driving and being in bright outdoor environments. In addition, patients with untreated disease, in particular those with VKC and AKC, can experience remodeling of the ocular surface tissues that can lead to vision loss. In addition to the primary symptoms of allergic conjunctivitis, a high correlation of allergic rhinitis, allergic asthma and atopic dermatitis comorbidities occur in this patient population. We believe that approximately 50,000 to 150,000 patients in the United States suffer from severe AKC, VKC or PAC and could be candidates for treatment with AK002.

Development Plan

We are conducting an open-label Phase 1 trial with AK002 in patients with SAC. The trial is enrolling patients with three different forms of allergic conjunctivitis: AKC, VKC and PAC. Approximately 30 patients are planned to be enrolled and will receive six monthly doses of AK002. The primary endpoint of the trial is safety and tolerability. Key secondary endpoints include symptom measures of ocular itch, pain, lacrimation, photophobia and foreign body sensation. We expect to report data from this trial in the first quarter of 2019.

Preclinical Results

AK002 Results in Disease Models Suggest Broad Activity

Because Siglec-8 is found only in cells of humans and certain other primates, we have developed a proprietary Siglec-8 transgenic mouse, in which Siglec-8 is expressed with a similar tissue distribution to humans and is functionally active. The transgenic mouse provides us with a proprietary tool to assess the safety, tolerability and activity of anti-Siglec-8 antibodies.

AK002 has completed short- and long-term toxicity studies in Siglec-8 transgenic mice. Chronic weekly dosing for six months with AK002 in transgenic mice at dose levels of 50 or 100 mg/kg resulted in no adverse AK002-related findings in mortality, clinical observations, body weight, food consumption and anatomic pathology after the end of dosing. Non-adverse findings included decreases in eosinophil counts in both sexes at ^{3}50 mg/kg/week, which persisted through the recovery period. These findings reflect the expected pharmacology of AK002. The no-observed-adverse-effect-level of AK002 after chronic dosing for six months was 100 mg/kg/week.

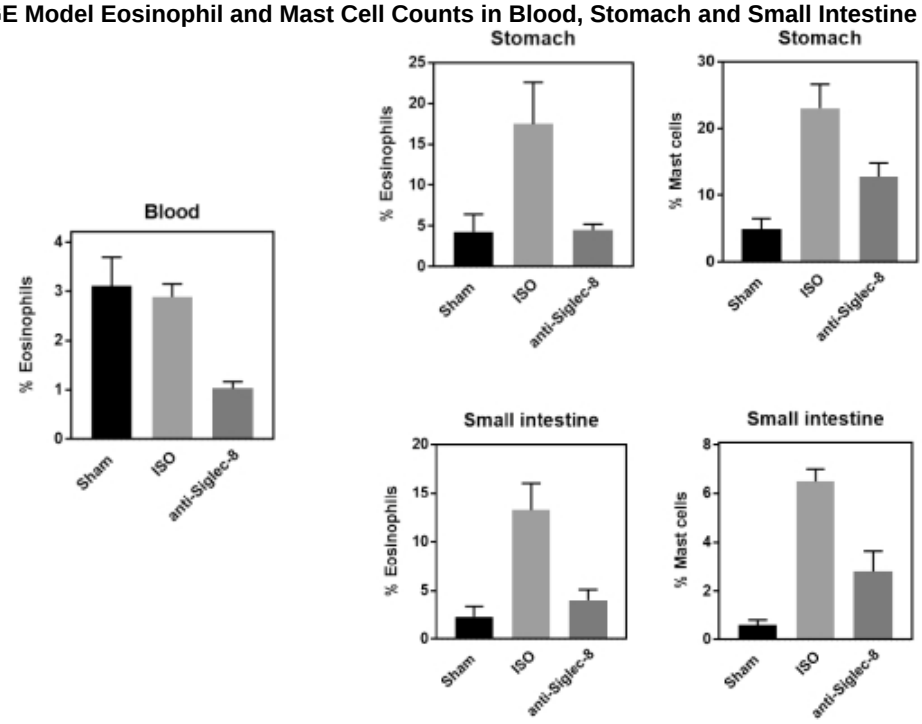
We have shown that AK002 or antibodies to Siglec-8 have broad activity in animal disease models (eosinophilic gastroenteritis, anaphylaxis, fibrosis and chronic obstructive pulmonary disease) and in human *ex vivo* diseased tissue (eosinophilic gastrointestinal disease, mastocytosis, atomic dermatitis and lung). In these models, anti-Siglec-8 antibodies have significantly reduced eosinophil and inhibited mast cells. The activity in these models suggests AK002 has the potential to treat eosinophil and mast cell inflammation in a number of disease settings and highlights AK002's ability to inhibit the inflammatory cascade triggered by different activating signals.

Anti-Siglec-8 Antibody Reduces Eosinophil and Mast Cell Levels in EG/EGE Model

In this model, two groups of Siglec-8 transgenic mice were sensitized with ovalbumin to induce eosinophil and mast cell driven gastrointestinal inflammation similar to that observed in EG and other EGIDs. A third group of animals was administered phosphate buffered saline to serve as normal unsensitized sham controls ("sham"). Treatment with a single dose of anti-Siglec-8 antibody led to lower levels of eosinophils in the blood, stomach and small intestine and reduced numbers of mast

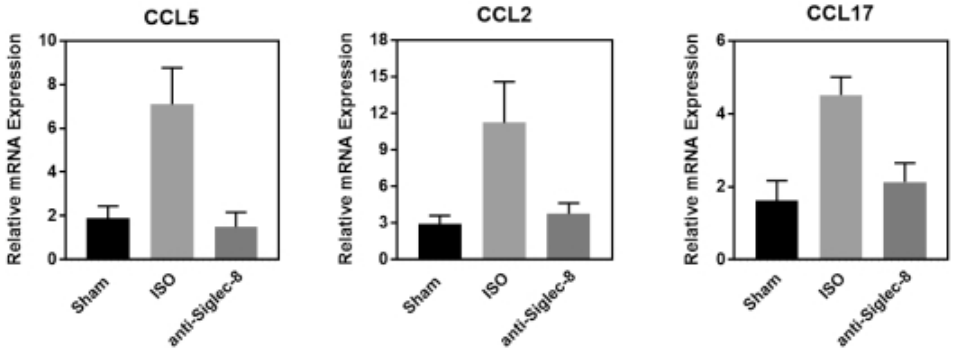
cells in the stomach and small intestine compared to mice that received an isotype control antibody ("ISO").

Figure C. EG/EGE Model Eosinophil and Mast Cell Counts in Blood, Stomach and Small Intestine



Anti-Siglec-8 treatment also reduced the levels of multiple important chemokines (CCL5/Rantes, CCL2/MCP-1, CCL17) to the levels of sham control animals. Chemokines are known to recruit and activate cells of the innate and adaptive immune system. By normalizing chemokine secretions, AK002 may be able to reduce further recruitment of immune cells and thereby interrupt the inflammatory cascade.

Figure D. Chemokine Levels in the EG/EGE Mouse Model



Anti-Siglec-8 Antibody Inhibits IgE Mediated Systemic Anaphylaxis in Mouse Model

The ability of an anti-Siglec-8 antibody to inhibit IgE-mediated mast cell activation was demonstrated in a mouse model of systemic anaphylaxis. Anaphylaxis occurs due to IgE-mediated release of inflammatory mediators and cytokines from mast cells, which results in vasodilation, a reduction in core body temperature, itchiness and bronchoconstriction, among other symptoms. In this model, “humanized” mice engrafted with human immune cells were pretreated with an anti-Siglec-8 antibody or an isotype control antibody, administered an allergen-specific IgE, and 24 hours later, anaphylaxis was triggered using an allergen. Mice treated with the isotype control antibody plus IgE and allergen displayed symptoms of anaphylaxis and body temperature decreases that peaked 10 to 40 minutes after inducing anaphylaxis. In contrast, mice treated with the anti-Siglec-8 antibody plus IgE and allergen displayed no observable symptoms and had no significant changes in core body temperature.

Anti-Siglec-8 Antibody Decreases Bleomycin Induced Lung Fibrosis in Mouse Model

Lung fibrosis induced by bleomycin is believed to be due to the increased expression of IL-33. IL-33 induces mast cells to release mediators that activate fibroblasts leading to fibrosis and collagen deposition. In this model, lung fibrosis was induced by administering bleomycin to Siglec-8 transgenic mice every other day for 30 days. On days 14, 21 and 28, an anti-Siglec-8 or isotype control antibody was administered. Fibrosis was assessed on day 30 for anti-Siglec-8 or isotype control antibody treated mice and compared to sham treated mice (mice that did not receive bleomycin). Relative to control antibody mice, mice treated with an anti-Siglec-8 antibody displayed minimal fibrotic changes. In addition, the bronchoalveolar lavage of anti-Siglec-8 treated mice displayed reduced levels of infiltrating leukocytes that were similar to sham treated animals.

Anti-Siglec-8 Antibody Inhibits IL-33/TSLP Activation of Mast Cells from Human Skin

IL-33 combined with TSLP is a potent activator of mast cells and results in increased expression of the mast cell activation marker CD63. Mast cells isolated from skin showed a 20% increase in the expression of CD63 after overnight exposure to IL-33 and TSLP. In contrast, skin mast cells treated with AK002 along with IL-33 and TSLP did not show increased activation, with CD63 levels remaining similar to control levels (no IL-33 and TSLP exposure). In addition, levels of the chemokines CCL2 and ENA78 did not increase after stimulation with IL-33 and TSLP in the presence of AK002. Chemokines are known to recruit and activate cells of the innate and adaptive immune system. By normalizing chemokine secretions, AK002 may be able to reduce further recruitment of immune cells and thereby interrupt the inflammatory cascade.

AK001

We initially began developing two product candidates, AK001 and AK002, both of which are monoclonal antibodies targeting Siglec-8. These compounds entered clinical development in 2015 and 2016, respectively. Due to the greater activity of AK002, we decided to focus our development efforts on AK002 and discontinued the development of AK001 in 2017. We have no current plans to continue development of AK001, but may choose to do so in the future.

Preclinical Programs

We are developing two additional antibodies targeting novel immune system receptors for the treatment of cancer. These antibodies are being assessed in a variety of animal models.

Risks Associated with Our Business

Our business is subject to numerous risks and uncertainties that you should consider before investing in us. These risks are described more fully in the section titled “Risk Factors” in this prospectus. These risks include, but are not limited to, the following:

- We are in the early stages of clinical drug development and have a very limited operating history and no products approved for commercial sale.
- We have incurred significant net losses since inception and we expect to continue to incur significant net losses for the foreseeable future.
- Our ability to generate revenue and achieve profitability depends significantly on our ability to achieve a number of objectives.
- Even if this offering is successful, we will require substantial additional capital to finance our operation.
- We are dependent on the success of our lead compound, AK002, which is currently in multiple clinical trials.
- The regulatory approval processes of the FDA, European Medicines Agency and comparable foreign regulatory authorities are lengthy, time-consuming and inherently unpredictable.
- If we experience delays or difficulties in the enrollment of patients in clinical trials, our receipt of necessary marketing approvals could be delayed or prevented.
- The clinical trials of our product candidates may not demonstrate safety and efficacy to the satisfaction of regulatory authorities or otherwise produce positive results.
- We may be unable to obtain U.S. or foreign regulatory approval and, as a result, unable to commercialize our product candidates.
- The sizes of the patient populations suffering from some of the diseases we are targeting are small and based on estimates that may not be accurate.
- If we are unable to obtain or protect intellectual property rights, we may not be able to compete effectively in our market.

Corporate Information

We were incorporated in Delaware in March 2012. Our principal executive offices are located at 75 Shoreway Road, Suite A, San Carlos, California 94070. Our telephone number is (650) 597-5002. Our website address is www.allakos.com. Information contained on the website is not incorporated by reference into this prospectus and should not be considered to be part of this prospectus.

We use Allakos®, the Allakos logo and other marks as trademarks in the United States and other countries. This prospectus contains references to our trademarks and service marks and to those 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 or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other entities’ trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other entity.

Implications of Being an Emerging Growth Company

We are an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, as amended (“JOBS Act”). We will remain an emerging growth company until the earliest to occur of: the last day of the fiscal year in which we have more than $1.07 billion in annual revenue; the date we qualify as a “large accelerated filer,” with at least $700 million of equity securities held by non-affiliates; the issuance, in any three-year period, by us of more than $1.0 billion in non-convertible debt securities; and the last day of the fiscal year ending after the fifth anniversary of our initial public offering. As a result of this status, we have taken advantage of reduced reporting requirements in this prospectus and may elect to take advantage of other reduced reporting requirements in our future filings with the SEC. In particular, in this prospectus, we have provided only two years of audited financial statements and have not included all of the executive compensation related information that would be required if we were not an emerging growth company. In addition, 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, delaying the adoption of these accounting standards until they would apply to private companies. We have irrevocably elected not to avail ourselves of this exemption and, as a result, upon completion of this offering we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies that are not emerging growth companies.

THE OFFERING

Common stock offered by us	shares
Common stock to be outstanding after this offering	shares (or shares if the underwriters exercise their option to purchase additional shares in full)
Underwriters' option to purchase additional shares	We have granted the underwriters an option for a period of 30 days to purchase up to additional shares of our common stock.
Use of proceeds	We intend to use the net proceeds from this offering for (1) the development of our lead compound, AK002, and (2) other research and development activities, working capital and general corporate purposes. See the section titled "Use of Proceeds" for more information.
Proposed trading symbol	"ALLK"

The number of shares of our common stock to be outstanding after this offering is based on the 41,357,383 shares of our common stock outstanding as of December 31, 2017 (including convertible preferred stock on an as-converted basis), and excludes the following:

- 6,104,949 shares of common stock issuable upon exercise of options to purchase shares of our common stock outstanding as of December 31, 2017, at a weighted-average exercise price of $0.53 per share;
- 1,675,727 shares of common stock issuable upon exercise of options to purchase shares of our common stock that we granted after December 31, 2017, at a weighted-average exercise price of $3.21 per share;
- 59,522 shares of common stock issuable upon exercise of a warrant to purchase shares of common stock outstanding as of December 31, 2017, at a weighted-average exercise price of $0.49 per share;
- shares of common stock reserved for future issuance under our stock-based compensation plans, consisting of:
  - 1,256,446 shares of common stock reserved for future issuance under our 2012 Equity Incentive Plan, as amended ("2012 Plan"), which shares will be included in the shares to be reserved under our 2018 Equity Incentive Plan ("2018 Plan"); and
  - shares of common stock reserved for future issuance under our 2018 Plan, which will become effective in connection with this offering, and any additional shares that become available under our 2018 Plan pursuant to provisions thereof that automatically increase the share reserve under the plan each year, as more fully described in the section titled "Executive Compensation—Employee Benefit and Stock Plans."

Unless otherwise indicated, this prospectus reflects and assumes the following:

- no exercise of outstanding options or warrants;

- no exercise by the underwriters of their option to purchase additional shares of common stock from us in this offering;
- the conversion of all outstanding shares of our convertible preferred stock into an aggregate of 38,714,587 shares of our common stock, which will occur immediately prior to the closing of this offering; and
- the filing and effectiveness of our amended and restated certificate of incorporation and the effectiveness of our amended and restated bylaws, which will occur immediately prior to the closing of this offering.

SUMMARY FINANCIAL DATA

The following tables summarize our financial data for the periods and as of the dates indicated. We have derived the statements of operations and comprehensive loss data for the years ended December 31, 2016 and 2017, and the balance sheet data as of December 31, 2017, from our audited financial statements included elsewhere in this prospectus. Our historical results are not necessarily indicative of results that may be expected in the future. You should read the following summary financial data together with our financial statements and the related notes appearing elsewhere in this prospectus and the information in the sections titled "Selected Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations."

	Year Ended December 31,	
	2016	2017
	(in thousands, except per share data)	
Statements of Operations Data:		
Operating expenses:		
Research and development	$ 14,672	$ 18,506
General and administrative	2,388	3,748
Total operating expenses	17,060	22,254
Loss from operations	(17,060)	(22,254)
Interest expense, net	(51)	(1,302)
Other income (expense), net	11	(287)
Loss before benefit from income taxes	(17,100)	(23,843)
Provision for (benefit from) income taxes	—	(291)
Net loss and comprehensive loss	$(17,100)	$(23,552)
Net loss per share: (1)		
Basic and diluted	$ (10.43)	$ (11.63)
Weighted-average shares of common stock outstanding: (1)		
Basic and diluted	1,640	2,025
Pro forma net loss per share: (1)		
Basic and diluted (unaudited)		$ (0.81)
Pro forma weighted-average shares of common stock outstanding: (1)		
Basic and diluted (unaudited)		29,216

(1) See our statements of operations and comprehensive loss and Note 2 to our financial statements for further details on the calculation of net loss per share, basic and diluted, attributable to common stockholders and the weighted-average number of shares of common stock used in the computation of the per share amounts and unaudited pro forma information.

	As of December 31, 2017		
	Actual	Pro Forma [1]	Pro Forma As Adjusted [2] [3]
	(in thousands)		
Balance Sheet Data:			
Cash and cash equivalents	$ 85,207	$ 85,207	$
Working capital [4]	83,452	83,452	
Total assets	87,029	87,029	
Total liabilities	2,828	2,828	2,828
Convertible preferred stock	142,969	—	—
Accumulated deficit	(60,574)	(60,574)	(60,574)
Total stockholders' equity (deficit)	(58,768)	84,201	

(1) The pro forma column in the balance sheet table reflects the automatic conversion of our outstanding shares of convertible preferred stock into 38,714,587 shares of common stock, which will occur immediately prior to the closing of this offering.

(2) The pro forma as adjusted column gives effect to the adjustments described in footnote (1) above and the sale by us of shares of common stock in this offering at an assumed initial public offering price of $ per share, the midpoint of the estimated 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.

(3) A $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash and cash equivalents, working capital, total assets and total stockholders' equity (deficit) by approximately $ 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 estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase (decrease) of one million shares in the number of shares offered by us would increase (decrease) each of cash and cash equivalents, working capital, total assets and stockholders' equity (deficit) equity by approximately $ million, assuming the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual public offering price and other terms of this offering determined at pricing.

(4) We define working capital as current assets less current liabilities. See our financial statements included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this prospectus, including our financial statements and the related notes and the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" in this prospectus, before deciding whether to invest in our common stock. The occurrence of any of the events or developments described below could harm our business, financial condition, results of operations and growth prospects. In such an event, the market price of our common stock could decline and you may lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations.

Risks Related to Our Financial Position and Need for Additional Capital

We are in the early stages of clinical drug development and have a very limited operating history and no products approved for commercial sale, which may make it difficult for you to evaluate our current business and predict our future success and viability.

We are an early clinical stage biopharmaceutical company with a limited operating history. We were incorporated and commenced operations in 2012, have no products approved for commercial sale and have not generated any revenue. Our operations to date have been limited to organizing and staffing our company, business planning, raising capital, identifying and developing potential product candidates, conducting preclinical and clinical studies of our product candidates, including Phase 1 and Phase 2 clinical trials of AK002, our lead compound. All of our product candidates currently under development, other than AK002, are in preclinical development. We have not yet demonstrated our ability to successfully complete any large-scale, pivotal clinical trials, obtain marketing approvals, manufacture a commercial-scale drug or arrange for a third party to do so on our behalf or conduct sales and marketing activities. As a result, it may be more difficult for you to accurately predict our future success or viability than it could be if we had a longer operating history.

In addition, as a business with a limited operating history, we may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown factors and risks frequently experienced by early-stage biopharmaceutical companies in rapidly evolving fields. We also may need to transition from a company with a research focus to a company capable of supporting commercial activities. We have not yet demonstrated an ability to successfully overcome such risks and difficulties, or to make such a transition. If we do not adequately address these risks and difficulties or successfully make such a transition, our business will suffer.

We have incurred significant net losses since inception and we expect to continue to incur significant net losses for the foreseeable future.

We have incurred net losses in each reporting period since our inception, have not generated any revenue to date and have financed our operations principally through private placements of our preferred stock. Our net loss was $17.1 million for the year ended December 31, 2016 and $23.6 million for the year ended December 31, 2017. As of December 31, 2017, we had an accumulated deficit of $60.6 million. We have devoted substantially all of our resources and efforts to research and development. Our lead compound, AK002, is in clinical development, and our other product candidates are in preclinical development. As a result, we expect that it will be several years, if ever, before we generate revenue from product sales. Even if we succeed in receiving marketing approval for and commercializing one or more of our product candidates, we expect that we will continue to incur substantial research and development and other expenses in order to develop and market additional potential products.

We expect to continue to incur significant expenses and increasing operating losses for the foreseeable future. The net losses we incur may fluctuate significantly from quarter-to-quarter such that a period-to-period comparison of our results of operations may not be a good indication of our future performance. The size of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate revenue. Our prior losses and expected future losses have had and will continue to have an adverse effect on our working capital and our ability to achieve and maintain profitability.

Our ability to generate revenue and achieve profitability depends significantly on our ability to achieve a number of objectives.

Our business depends entirely on the successful development and commercialization of our product candidates. We currently generate no revenues from sales of any products. We have no products approved for commercial sale and do not anticipate generating any revenue from product sales until some time after we have successfully completed clinical development and received marketing approval for the commercial sale of a product candidate, if ever. Our ability to generate revenue and achieve profitability depends significantly on our ability to achieve a number of objectives, including:

- successful and timely completion of preclinical and clinical development of our lead compound, AK002, and any other future product candidates;
- timely receipt of marketing approvals for AK002 and any future product candidates for which we successfully complete clinical development and clinical trials from applicable regulatory authorities;
- the extent of any required post-marketing approval commitments to applicable regulatory authorities;
- developing an efficient and scalable manufacturing process for AK002 and any future product candidates, including establishing and maintaining commercially viable supply and manufacturing relationships with third parties to obtain finished products that are appropriately packaged for sale;
- successful launch of commercial sales following any marketing approval, including the development of a commercial infrastructure, whether in-house or with one or more collaborators;
- a continued acceptable safety profile following any marketing approval;
- commercial acceptance of AK002 and any future product candidates as viable treatment options by patients, the medical community and third-party payors;
- addressing any competing technological and market developments;
- identifying, assessing, acquiring and developing new product candidates;
- obtaining and maintaining patent protection, trade secret protection and regulatory exclusivity, both in the United States and internationally;
- protection of our rights in our intellectual property portfolio, including our licensed intellectual property;
- negotiating favorable terms in any collaboration, licensing or other arrangements that may be necessary to develop, manufacture or commercialize our product candidates; and
- attracting, hiring and retaining qualified personnel.

We may never be successful in achieving our objectives and, even if we do, may never generate revenue that is significant or large enough to achieve profitability. If we do 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 decrease the value of our company and could impair our ability to maintain or further our research and development efforts, raise additional necessary capital, grow our business and/or continue our operations.

Even if this offering is successful, we will require substantial additional capital to finance our operations. If we are unable to raise such capital when needed, or on acceptable terms, we may be forced to delay, reduce and/or eliminate one or more of our research and drug development programs or future commercialization efforts.

Developing pharmaceutical products, including conducting preclinical studies and clinical trials, is a very time-consuming, expensive and uncertain process that takes years to complete. We expect our expenses to increase in connection with our ongoing activities, particularly as we conduct clinical trials of, and seek marketing approval for, AK002 and our other product candidates. In addition, if we obtain marketing approval for any of our product candidates, we expect to incur significant commercialization expenses related to drug sales, marketing, manufacturing and distribution. Commencing upon the closing of this offering, we also expect to incur additional costs associated with operating as a public company. Accordingly, we will need to obtain substantial additional funding in order to maintain our continuing operations. If we are unable to raise capital when needed or on acceptable terms, we may be forced to delay, reduce and/or eliminate one or more of our research and drug development programs or future commercialization efforts.

As of December 31, 2017, we had $85.2 million in cash and cash equivalents. We estimate that our net proceeds from this offering will be approximately $, assuming an initial public offering price of $, which is the midpoint of the estimated offering 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. We believe that our existing cash and cash equivalents will enable us to fund our operating expenses and capital expenditure requirements through at least the next twelve months. Our estimate as to how long we expect the net proceeds from this offering, together with our existing cash and cash equivalents, to be able to continue to fund our operations is based on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we currently expect. Changing circumstances, some of which may be beyond our control, could cause us to consume capital significantly faster than we currently anticipate, and we may need to seek additional funds sooner than planned.

We plan to use the net proceeds from this offering to fund our development of AK002 and for other research and development activities, working capital and other general corporate purposes. This may include additional research, hiring additional personnel, capital expenditures and the costs of operating as a public company. Advancing the development of AK002 and any other product candidates will require a significant amount of capital. The net proceeds from this offering and our existing cash and cash equivalents will not be sufficient to fund all of the actions that are necessary to complete the development of AK002 or any of our other product candidates. We will be required to obtain further funding through public or private equity offerings, debt financings, collaborations and licensing arrangements or other sources, which may dilute our stockholders or restrict our operating activities. We do not have any committed external source of funds. Adequate additional financing may not be available to us on acceptable terms, or at all. Our failure to raise capital as and when needed would have a negative impact on our financial condition and our ability to pursue our business strategy.

Risks Related to the Discovery, Development and Commercialization of Our Product Candidates

We are dependent on the success of our lead compound, AK002, which is currently in multiple clinical trials. If we are unable to obtain approval for and commercialize AK002 for one or more indications in a timely manner, our business could be materially harmed.

Our future success is dependent on our ability to timely complete clinical trials and obtain marketing approval for, and then successfully commercialize AK002, our lead compound, for one or more indications. AK002 is in the early stages of development and we are investing the majority of our efforts and financial resources in the research and development of AK002 for multiple indications. AK002 will require additional clinical development, evaluation of clinical, preclinical and manufacturing activities, marketing approval from government regulators, substantial investment and significant marketing efforts before we generate any revenues from product sales. We are not permitted to market or promote AK002, or any other product candidates, before we receive marketing approval from the U.S. Food and Drug Administration ("FDA") and comparable foreign regulatory authorities, and we may never receive such marketing approvals.

The success of AK002 will depend on several factors, including the following:

- successful and timely completion of our ongoing clinical trials of AK002;
- initiation and successful patient enrollment and completion of additional clinical trials on a timely basis;
- efficacy, safety and tolerability profiles that are satisfactory to the FDA or any comparable foreign regulatory authority for marketing approval;
- timely receipt of marketing approvals for AK002 from applicable regulatory authorities;
- the extent of any required post-marketing approval commitments to applicable regulatory authorities;
- the maintenance of existing or the establishment of new supply arrangements with third-party drug product suppliers and manufacturers;
- the maintenance of existing or the establishment of new scaled production arrangements with third-party manufacturers to obtain finished products that are appropriately packaged for sale;
- obtaining and maintaining patent protection, trade secret protection and regulatory exclusivity, both in the United States and internationally;
- protection of our rights in our intellectual property portfolio, including our licensed intellectual property;
- successful launch of commercial sales following any marketing approval;
- a continued acceptable safety profile following any marketing approval;
- commercial acceptance by patients, the medical community and third-party payors; and
- our ability to compete with other therapies.

We do not have complete control over many of these factors, including certain aspects of clinical development and the regulatory submission process, potential threats to our intellectual property rights and the manufacturing, marketing, distribution and sales efforts of any future collaborator.

The regulatory approval processes of the FDA, European Medicines Agency ("EMA") and comparable foreign regulatory authorities are lengthy, time-consuming and inherently unpredictable. If we are ultimately unable to obtain regulatory approval for our product candidates, we will be unable to generate product revenue and our business will be substantially harmed.

The time required to obtain approval by the FDA, EMA and comparable foreign regulatory authorities is unpredictable, typically takes many years following the commencement of clinical trials, and depends upon numerous factors, including the type, complexity and novelty of the product candidates involved. 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 and may vary among jurisdictions, which may cause delays in the approval or the decision not to approve an application. Regulatory authorities have substantial discretion in the approval process and may refuse to accept any application or may decide that our data are insufficient for approval and require additional preclinical, clinical or other data. Even if we eventually complete clinical testing and receive approval of any regulatory filing for our product candidates, the FDA, EMA and comparable foreign regulatory authorities may approve our product candidates for a more limited indication or a narrower patient population than we originally requested. We have not submitted for, or obtained regulatory approval for any product candidate, and 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.

Applications for our product candidates could fail to receive regulatory approval for many reasons, including but not limited to the following:

- the FDA, EMA or comparable foreign regulatory authorities may disagree with the design, implementation or results of our clinical trials;
- the FDA, EMA or comparable foreign regulatory authorities may determine that our product candidates are not safe and effective, only moderately effective or have undesirable or unintended side effects, toxicities or other characteristics that preclude our obtaining marketing approval or prevent or limit commercial use;
- the population studied in the clinical program may not be sufficiently broad or representative to assure efficacy and safety in the full population for which we seek approval;
- the FDA, EMA or comparable foreign regulatory authorities 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 a Biologics License Application ("BLA") or New Drug Application ("NDA"), or other submission or to obtain regulatory approval in the United States or elsewhere;
- we may be unable to demonstrate to the FDA, EMA or comparable foreign regulatory authorities that a product candidate's risk-benefit ratio for its proposed indication is acceptable;
- the FDA, EMA or comparable foreign regulatory authorities may fail to approve the manufacturing processes, test procedures and specifications or facilities of third-party manufacturers with which we contract for clinical and commercial supplies; and
- the approval policies or regulations of the FDA, EMA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

This lengthy approval process, as well as the unpredictability of the results of clinical trials, may result in our failing to obtain regulatory approval to market any of our product candidates, which would significantly harm our business, results of operations and prospects.

If we experience delays or difficulties in the enrollment of patients in clinical trials, our receipt of necessary marketing approvals could be delayed or prevented.

We may not be able to initiate or continue clinical trials for our product candidates if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or comparable foreign regulatory authorities. Patient enrollment is a significant factor in the timing of clinical trials. In particular, because certain of our clinical trials of AK002 are focused on indications with small patient populations, our ability to enroll eligible patients may be limited or may result in slower enrollment than we anticipate.

Patient enrollment may be affected if our competitors have ongoing clinical trials for product candidates that are under development for the same indications as our product candidates, and patients who would otherwise be eligible for our clinical trials instead enroll in clinical trials of our competitors' product candidates. Patient enrollment may also be affected by other factors, including:

- size and nature of the patient population;
- severity of the disease under investigation;
- availability and efficacy of approved drugs for the disease under investigation;
- patient eligibility criteria for the trial in question;
- perceived risks and benefits of the product candidate under study;
- efforts to facilitate timely enrollment in clinical trials;
- patient referral practices of physicians;
- the ability to monitor patients adequately during and after treatment;
- proximity and availability of clinical trial sites for prospective patients; and
- continued enrollment of prospective patients by clinical trial sites.

Our inability to enroll a sufficient number of patients for our clinical trials would result in significant delays or may require us to abandon one or more clinical trials altogether. Enrollment delays in our clinical trials may result in increased development costs for our product candidates and jeopardize our ability to obtain marketing approval for the sale of our product candidates.

The clinical trials of our product candidates may not demonstrate safety and efficacy to the satisfaction of regulatory authorities or otherwise produce positive results.

Before obtaining marketing approval from regulatory authorities for the sale of our product candidates, we must complete preclinical development and then conduct extensive clinical trials to demonstrate the safety and efficacy of our product candidates. Clinical testing is expensive, difficult to design and implement, can take many years to complete and its ultimate outcome is uncertain. A failure of one or more clinical trials can occur at any stage of the process. The outcome of preclinical studies and early-stage clinical trials may not be predictive of the success of later clinical trials. Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that have believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval of their drugs.

We do not know whether our future clinical trials will begin on time or enroll patients on time, or whether our ongoing and/or future clinical trials will be completed on schedule or at all. Clinical trials can be delayed for a variety of reasons, including delays related to:

- obtaining marketing approval to commence a trial;

- reaching agreement on acceptable terms with prospective contract research organizations ("CROs"), and clinical trial sites;
- obtaining institutional review board approval at each clinical trial site;
- recruiting suitable patients to participate in a trial;
- patients failing to comply with trial protocol or dropping out of a trial;
- clinical trial sites deviating from trial protocol or dropping out of a trial;
- the need to add new clinical trial sites; or
- manufacturing sufficient quantities of product candidate for use in clinical trials.

We may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent receipt of marketing approval or our ability to commercialize our product candidates, including:

- receipt of feedback from regulatory authorities that requires us to modify the design of our clinical trials;
- negative or inconclusive clinical trial results that may require us to conduct additional clinical trials or abandon certain drug development programs;
- the number of patients required for clinical trials being larger than anticipated, enrollment in these clinical trials being slower than anticipated or participants dropping out of these clinical trials at a higher rate than anticipated;
- third-party contractors failing to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;
- the suspension or termination of our clinical trials for various reasons, including non-compliance with regulatory requirements, a finding that our product candidates have undesirable side effects or other unexpected characteristics or risks;
- the cost of clinical trials of our product candidates being greater than anticipated;
- the supply or quality of our product candidates or other materials necessary to conduct clinical trials of our product candidates being insufficient or inadequate; and
- regulators revising the requirements for approving our product candidates.

If we are required to conduct additional clinical trials or other testing of our product candidates beyond those that we currently contemplate, if we are unable to successfully complete clinical trials of our product candidates or other testing, if the results of these trials or tests are not positive or are only modestly positive or if there are safety concerns, we may incur unplanned costs, be delayed in obtaining marketing approval, if at all, receive more limited or restrictive marketing approval, be subject to additional post-marketing testing requirements or have the drug removed from the market after obtaining marketing approval.

The outcome of preclinical testing and early clinical trials may not be predictive of the success of later clinical trials, and the results of our clinical trials may not satisfy the requirements of the FDA or comparable foreign regulatory authorities.

We currently have no drugs approved for sale and we cannot guarantee that we will ever have marketable drugs. Clinical failure can occur at any stage of clinical development. Clinical trials may produce negative or inconclusive results, and we or any future collaborators may decide, or regulators may require us, to conduct additional clinical trials or preclinical studies. We will be required to

demonstrate with substantial evidence through well-controlled clinical trials that our product candidates are safe and effective for use in a diverse population before we can seek marketing approvals for their commercial sale. Success in preclinical studies and early-stage clinical trials does not mean that future larger registration clinical trials will be successful. This is because product candidates in later-stage clinical trials may fail to demonstrate sufficient safety and efficacy to the satisfaction of the FDA and non-U.S. regulatory authorities despite having progressed through preclinical studies and early-stage clinical trials. In particular, no compound with the mechanism of action of AK002 has been commercialized, and the outcome of preclinical studies and early-stage clinical trials may not be predictive of the success of later-stage clinical trials.

From time to time, we may publish or report interim or preliminary data from our clinical trials. Interim or preliminary data from clinical trials that we may conduct may not be indicative of the final results of the trial and are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available. Interim or preliminary data also remain subject to audit and verification procedures that may result in the final data being materially different from the interim or preliminary data. As a result, interim or preliminary data should be viewed with caution until the final data are available.

In some instances, there can be significant variability in safety and efficacy results between different clinical trials of the same product candidate due to numerous factors, including changes in trial protocols, differences in size and type of the patient populations, differences in and adherence to the dosing regimen and other trial protocols and the rate of dropout among clinical trial participants. In addition, we use patient-reported outcome assessments (“PROs”) in our clinical trials, which involve patients’ subjective assessments of efficacy of the treatments they receive in the trial. Such assessments can vary widely from day to day for a particular patient, and from patient to patient and site to site within a clinical trial. This subjectivity can increase the uncertainty of, and adversely impact, our clinical trial outcomes.

We do not know whether any clinical trials we may conduct will demonstrate consistent or adequate efficacy and safety sufficient to obtain marketing approval to market our product candidates.

Our product candidates may not achieve adequate market acceptance among physicians, patients, healthcare payors and others in the medical community necessary for commercial success.

Even if our product candidates receive regulatory approval, they may not gain adequate market acceptance among physicians, patients, healthcare payors and others in the medical community. The degree of market acceptance of any of our approved product candidates will depend on a number of factors, including:

- the efficacy and safety profile as demonstrated in planned clinical trials;
- the timing of market introduction of the product candidate as well as competitive products;
- the clinical indications for which the product candidate is approved;
- restrictions on the use of our products, if approved, such as boxed warnings or contraindications in labeling, or a risk evaluation and mitigation strategy, if any, which may not be required of alternative treatments and competitor products;
- the potential and perceived advantages of product candidates over alternative treatments;
- the cost of treatment in relation to alternative treatments;
- the availability of coverage and adequate reimbursement and pricing by third parties and government authorities;

- relative convenience and ease of administration;
- the effectiveness of sales and marketing efforts;
- unfavorable publicity relating to the product candidate; and
- the approval of other new therapies for the same indications.

If any product candidate is approved but does not achieve an adequate level of acceptance by physicians, hospitals, healthcare payors and patients, we may not generate or derive sufficient revenue from that product candidate and our financial results could be harmed. AK002 is currently administered as an intravenous treatment, which is less convenient for patients than some other methods of administration, such as an orally delivered drug.

The sizes of the patient populations suffering from some of the diseases we are targeting are small and based on estimates that may not be accurate.

Our projections of both the number of people who have some of the diseases we are targeting, as well as the subset of people with these diseases who have the potential to benefit from treatment with AK002 and any other future product candidates, are estimates. These estimates have been derived from a variety of sources, including scientific literature, surveys of clinics, physician interviews, patient foundations and market research, and may prove to be incorrect. Further, new studies may change the estimated incidence or prevalence of these diseases. The number of patients may turn out to be lower than expected. Additionally, the potentially addressable patient population for AK002 and any other future product candidates may be limited or may not be amenable to treatment with AK002 and any other products, if and when approved. Even if we obtain significant market share for AK002 and any other products (if and when they are approved), small potential target populations for certain indications means we may never achieve profitability without obtaining market approval for additional indications.

Our business will be impacted by our ability to advance additional product candidates beyond AK002 into clinical development and through to regulatory approval and commercialization. Our other product candidates are at even earlier stages of development than AK002 and may fail in development or suffer delays that adversely affect their commercial viability.

All of our product candidates are in the early stages of development, and may fail in development or suffer delays that adversely affect their commercial viability. A product candidate can unexpectedly fail at any stage of preclinical and clinical development. The historical failure rate for product candidates is high due to risks relating to safety, efficacy, clinical execution, changing standards of medical care and other unpredictable variables. The results from preclinical testing or early clinical trials of a product candidate may not be predictive of the results that will be obtained in later-stage clinical trials of the product candidate.

Our future operating results are dependent on our ability to successfully develop, obtain regulatory approval for, and then successfully commercialize other product candidates in addition to AK002. The success of any product candidates we may develop will depend on many factors, including the following:

- generating sufficient data to support the initiation or continuation of clinical trials;
- obtaining regulatory permission to initiate clinical trials;
- contracting with the necessary parties to conduct clinical trials;
- successful enrollment of patients in, and the completion of, clinical trials;

- the timely manufacture of sufficient quantities of the product candidate for use in clinical trials; and
- adverse events in the clinical trials.

Even if we successfully advance any other product candidates into clinical development, their success will be subject to all of the clinical, regulatory and commercial risks described elsewhere in this “Risk Factors” section. Accordingly, we cannot assure you that we will ever be able to develop, obtain regulatory approval of, commercialize or generate significant revenue from any other product candidates.

Any drugs we develop may become subject to unfavorable third-party reimbursement practices and pricing regulations.

The availability and extent of coverage and adequate reimbursement by governmental and private payors is essential for most patients to be able to afford expensive treatments. Sales of any of our product candidates that receive marketing approval will depend substantially, both in the United States and internationally, on the extent to which the costs of our product candidates will be paid by health maintenance, managed care, pharmacy benefit, and similar healthcare management organizations or reimbursed by government health administration authorities, private health coverage insurers and other third-party payors. If reimbursement is not available, or is available only to limited levels, we may not be able to successfully commercialize our product candidates. Even if coverage is provided, the approved reimbursement amount may not be high enough to allow us to establish or maintain pricing sufficient to realize an adequate return on our investment. Coverage and reimbursement may impact the demand for, or the price of, any product candidate for which we obtain marketing approval. If coverage and reimbursement are not available or reimbursement is available only to limited levels, we may not successfully commercialize any product candidate for which we obtain marketing approval.

There is significant uncertainty related to insurance coverage and reimbursement of newly approved products. In the United States, principal decisions about reimbursement for new products are typically made by the Centers for Medicare & Medicaid Services (“CMS”), an agency within the U.S. Department of Health and Human Services. CMS decides whether and to what extent a new product will be covered and reimbursed under Medicare, and private payors often follow CMS’s decisions regarding coverage and reimbursement to a substantial degree. However, one payor’s determination to provide coverage for a drug product does not assure that other payors will also provide coverage for the drug product. As a result, the coverage determination process is often time-consuming and costly. This process will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance.

Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. Further, such payors are increasingly challenging the price, examining the medical necessity and reviewing the cost effectiveness of medical drug products. There may be especially significant delays in obtaining coverage and reimbursement for newly approved drugs. Third-party payors may limit coverage to specific drug products on an approved list, known as a formulary, which might not include all FDA-approved drugs for a particular indication. We may need to conduct expensive pharmaco-economic studies to demonstrate the medical necessity and cost effectiveness of our products. Nonetheless, our product candidates may not be considered medically necessary or cost effective. We cannot be sure that coverage and reimbursement will be available for any product that we commercialize and, if reimbursement is available, what the level of reimbursement will be.

Outside the United States, international operations are generally subject to extensive governmental price controls and other market regulations, and we believe the increasing emphasis on

cost containment initiatives in Europe, Canada and other countries has and will continue to put pressure on the pricing and usage of therapeutics such as our product candidates. In many countries, particularly the countries of the European Union, medical product prices are subject to varying price control mechanisms as part of national health systems. In these countries, pricing negotiations with governmental authorities can take considerable time after a product receives marketing approval. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidate to other available therapies. In general, product prices under such systems are substantially lower than in the United States. Other countries allow companies to fix their own prices for products, but monitor and control company profits. Additional foreign price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our product candidates. Accordingly, in markets outside the United States, the reimbursement for our products may be reduced compared with the United States and may be insufficient to generate commercially reasonable revenue and profits.

If we are unable to establish or sustain coverage and adequate reimbursement for any future product candidates from third-party payors, the adoption of those products and sales revenue will be adversely affected, which, in turn, could adversely affect the ability to market or sell those product candidates, if approved. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

If our competitors develop and market products that are more effective, safer or less expensive than our product candidates, our commercial opportunities will be negatively impacted.

The biotechnology industry is highly competitive and subject to rapid and significant technological change. Products we may develop in the future are likely to face competition from other drugs and therapies, some of which we may not currently be aware. In addition, our products may need to compete with off-label drugs used by physicians to treat the indications for which we seek approval. This may make it difficult for us to replace existing therapies with our products.

We are not aware of any other company or organization that is conducting clinical trials of a product candidate that targets both eosinophils and mast cells, including any product candidate that specifically targets Siglec-8. The competition we may face with respect to the indications we are targeting with AK002 includes announced plans by Blueprint Medicines to begin a trial evaluating avapritinib in ISM in the second half of 2018, and current testing by Novartis Pharmaceuticals of ligelizumab in a Phase 2 trial for chronic spontaneous urticaria.

These companies, or other major multinational pharmaceutical and biotechnology companies, emerging and start-up companies, universities and other research institutions, could focus their future efforts on developing competing therapies and treatments for any of the indications we are currently targeting or may target in the future. Many of these current and potential competitors have significantly greater financial, manufacturing, marketing, drug development, technical and human resources and commercial expertise than we do. Large pharmaceutical and biotechnology companies, in particular, have extensive experience in clinical testing, obtaining regulatory approvals, recruiting patients and manufacturing biotechnology products. These companies also have significantly greater research and marketing capabilities than we do and may also have products that have been approved or are in late stages of development, and collaborative arrangements in our target markets with leading companies and research institutions. Established pharmaceutical and biotechnology companies may also invest heavily to accelerate discovery and development of novel compounds or to in-license novel compounds that could make the product candidates that we develop obsolete. As a result of all of these factors, our competitors may succeed in obtaining approval from the FDA or foreign regulatory authorities or discovering, developing and commercializing products in our field before we do.

Smaller and other early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These companies compete with us in recruiting and retaining qualified scientific and management personnel, establishing clinical trial sites and patient registration for planned clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs. In addition, the biotechnology industry is characterized by rapid technological change. If we fail to stay at the forefront of technological change, we may be unable to compete effectively. Technological advances or products developed by our competitors may render our technologies or product candidates obsolete, less competitive or not economical.

We have limited resources and are currently focusing our efforts on developing AK002 for particular indications. As a result, we may fail to capitalize on other product candidates or indications that may ultimately have proven to be more profitable.

We are currently focusing our efforts on developing AK002 for eosinophilic gastritis ("EG"), indolent systemic mastocytosis ("ISM"), chronic urticaria ("CU") and severe allergic conjunctivitis ("SAC"). As a result, we may forego or delay pursuit of opportunities for other indications or with other product candidates that may have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial drugs or profitable market opportunities. Our spending on current and future research and development activities for specific indications may not yield any commercially viable drugs. If we do not accurately evaluate the commercial potential or target markets for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing or other strategic arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate.

Our business entails a significant risk of product liability and if we are unable to obtain sufficient insurance coverage such inability could have an adverse effect on our business and financial condition.

Our business exposes us to significant product liability risks inherent in the development, testing, manufacturing and marketing of therapeutic treatments. Product liability claims could delay or prevent completion of our development programs. If we succeed in marketing products, such claims could result in an FDA investigation of the safety and effectiveness of our products, our manufacturing processes and facilities or our marketing programs. FDA investigation could potentially lead to a recall of our products or more serious enforcement action, limitations on the approved indications for which they may be used or suspension or withdrawal of approvals. Regardless of the merits or eventual outcome, liability claims may also result in decreased demand for our products, injury to our reputation, costs to defend the related litigation, a diversion of management's time and our resources and substantial monetary awards to trial participants or patients. We currently have product liability insurance that we believe is appropriate for our stage of development and may need to obtain higher levels prior to marketing any of our product candidates, if approved. Any insurance we have or may obtain may not provide sufficient coverage against potential liabilities. Furthermore, clinical trial and product liability insurance is becoming increasingly expensive. As a result, we may be unable to obtain sufficient insurance at a reasonable cost to protect us against losses caused by product liability claims that could have an adverse effect on our business and financial condition.

Risks Related to Regulatory Approval and Other Legal Compliance Matters

We may be unable to obtain U.S. or foreign regulatory approval and, as a result, unable to commercialize our product candidates.

Our product candidates are subject to extensive governmental regulations relating to, among other things, research, testing, development, manufacturing, safety, efficacy, approval, recordkeeping,

reporting, labeling, storage, packaging, advertising and promotion, pricing, marketing and distribution of drugs and therapeutic biologics. Rigorous preclinical testing and clinical trials and an extensive regulatory approval process must be successfully completed in the United States and in many foreign jurisdictions before a new drug or therapeutic biologic can be marketed. Satisfaction of these and other regulatory requirements is costly, time-consuming, uncertain and subject to unanticipated delays. It is possible that none of the product candidates we may develop will obtain the regulatory approvals necessary for us to begin selling them.

Our company has not conducted or managed clinical trials through regulatory approval, including FDA approval. The time required to obtain FDA and other approvals is unpredictable but typically takes many years following the commencement of clinical trials, depending upon the type, complexity and novelty of the product candidate. The standards that the FDA and its foreign counterparts use when regulating us require judgment and can change, which makes it difficult to predict with certainty how they will be applied. Any analysis we perform of data from preclinical and clinical activities is subject to confirmation and interpretation by regulatory authorities, which could delay, limit or prevent regulatory approval. We may also encounter unexpected delays or increased costs due to new government regulations. Examples of such regulations include future legislation or administrative action, or changes in FDA policy during the period of product development, clinical trials and FDA regulatory review. It is impossible to predict whether legislative changes will be enacted, or whether FDA or foreign regulations, guidance or interpretations will be changed, or what the impact of such changes, if any, may be.

Any delay or failure in obtaining required approvals could have a material and adverse effect on our ability to generate revenue from the particular product candidate for which we are seeking approval. Furthermore, any regulatory approval to market a product may be subject to limitations on the approved uses for which we may market the product or the labeling or other restrictions. In addition, the FDA has the authority to require a Risk Evaluation and Mitigation Strategy (“REMS”), plan as part of a BLA or NDA, or after approval, which may impose further requirements or restrictions on the distribution or use of an approved drug or biologic. These requirements or restrictions might include limiting prescribing to certain physicians or medical centers that have undergone specialized training, limiting treatment to patients who meet certain safe-use criteria and requiring treated patients to enroll in a registry. These limitations and restrictions may limit the size of the market for the product and affect reimbursement by third-party payors.

We are also subject to numerous foreign regulatory requirements governing, among other things, the conduct of clinical trials, manufacturing and marketing authorization, pricing and third-party reimbursement. The foreign regulatory approval process varies among countries and may include all of the risks associated with FDA approval described above as well as risks attributable to the satisfaction of local regulations in foreign jurisdictions. Moreover, the time required to obtain approval may differ from that required to obtain FDA approval. Approval by the FDA does not ensure approval by regulatory authorities outside the United States and vice versa.

Our clinical trials may reveal significant adverse events, toxicities or other side effects and may result in a safety profile that could inhibit regulatory approval or market acceptance of any of our product candidates.

In order to obtain marketing approval for any of our product candidates, we must demonstrate the safety and efficacy of the product candidate for the relevant clinical indication or indications through preclinical studies and clinical trials as well as additional supporting data. If our product candidates are associated with undesirable side effects in preclinical studies or clinical trials, or have unexpected characteristics, we may need to interrupt, delay or abandon their development or limit development to more narrow uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective.

We have completed a randomized, double-blind placebo-controlled Phase 1 trial for AK002 in 51 healthy volunteers and have an ongoing Phase 1 trial in 25 patients with ISM. We are also currently testing AK002 in a double-blind, placebo-controlled Phase 2 trial in patients with EG, in an open-label Phase 2 trial in patients with CU and in a Phase 1 trial in patients with SAC. Although we have conducted various preclinical studies and completed one Phase 1 clinical trial, we do not know the predictive value of these studies and trials for our future clinical trials, and we cannot guarantee that any positive results in preclinical studies or previous clinical trials will successfully translate to patients in our future clinical trials. It is not uncommon to observe results in clinical trials that are unexpected based on preclinical testing, and many product candidates fail in clinical trials despite promising preclinical results. Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval for their products. Because Siglec-8 is only naturally expressed in humans and certain other primates, there is no standard animal toxicology model for anti-Siglec-8 therapies, and the acceptability of our preclinical safety data for AK002 depends on the continued acceptance by the FDA and EMA, and the acceptance by other regulatory authorities, of the use of our proprietary transgenic mice models for toxicology studies.

AK002 has generally been well tolerated in our clinical trials. The most common adverse event has been the occurrence of mild to moderate infusion-related reactions (“IRRs”) (flushing, feeling of warmth, headache, nausea and dizziness) which occurred mostly during the first infusion and diminished or did not occur on subsequent infusions. Temporal interruption of the AK002 infusion and minimal intervention generally resulted in prompt resolution of symptoms and ability to resume the infusion without further complications. In the Phase 1 healthy volunteer trial, one subject treated with 1.0 mg/kg of AK002 administered over one hour experienced an infusion reaction three hours after dosing, including nausea, vomiting and hypotension, which was considered severe and led to the subject discontinuing from the trial. The subject was treated with standard therapies and no further symptoms occurred. Subjects in our ongoing and planned clinical trials may in the future suffer other significant adverse events or other side effects not observed in our preclinical studies or previous clinical trials. If clinical trials of our product candidates fail to demonstrate efficacy to the satisfaction of regulatory authorities or do not otherwise produce positive results, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, development and commercialization of our product candidates.

If further significant adverse events or other side effects are observed in any of our current or future clinical trials, we may have difficulty recruiting patients to the clinical trials, patients may drop out of our trials, or we may be required to abandon the trials or our development efforts of that product candidate altogether. We, the FDA, the EMA, other applicable regulatory authorities or an institutional review board may suspend clinical trials of a product candidate at any time for various reasons, including a belief that subjects in such trials are being exposed to unacceptable health risks or adverse side effects. Some potential therapeutics developed in the biotechnology industry that initially showed therapeutic promise in early-stage studies have later been found to cause side effects that prevented their further development. Even if the side effects do not preclude the drug from obtaining or maintaining marketing approval, undesirable side effects may inhibit market acceptance of the approved product due to its tolerability versus other therapies. Any of these developments could materially harm our business, financial condition and prospects.

Further, if any of our product candidates obtains marketing approval, toxicities associated with our product candidates may also develop after such approval and lead to a requirement to conduct additional clinical safety trials, additional warnings being added to the labeling, significant restrictions on the use of the product or the withdrawal of the product from the market. We cannot predict whether

our product candidates will cause toxicities in humans that would preclude or lead to the revocation of regulatory approval based on preclinical studies or early-stage clinical testing.

The FDA, EMA and applicable foreign regulatory authorities may not accept data from trials conducted in locations outside of their jurisdiction.

We have completed a clinical trial in Australia and currently have an ongoing clinical trial in Germany. We may also in the future choose to conduct additional clinical trials in these countries or other countries, including in Europe. The acceptance of study data by the FDA, EMA or applicable foreign regulatory authority from clinical trials conducted outside of their respective jurisdictions may be subject to certain conditions. In cases where data from foreign clinical trials are intended to serve as the basis for marketing approval in the United States, the FDA will generally not approve the application on the basis of foreign data alone unless (i) the data are applicable to the United States population and United States medical practice and (ii) the trials are performed by clinical investigators of recognized competence and pursuant to current good clinical practices regulations. Additionally, the FDA's clinical trial requirements, including sufficient size of patient populations and statistical powering, must be met. Many foreign regulatory bodies have similar approval requirements. In addition, such foreign trials would be subject to the applicable local laws of the foreign jurisdictions where the trials are conducted. There can be no assurance that the FDA, EMA or any applicable foreign regulatory authority will accept data from trials conducted outside of its applicable jurisdiction. If the FDA, EMA or any applicable foreign regulatory authority does not accept such data, it would result in the need for additional trials, which would be costly and time-consuming and delay aspects of our business plan, and which may result in our product candidates not receiving approval or clearance for commercialization in the applicable jurisdiction.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not mean that we will be successful in obtaining regulatory approval of our product candidates in other jurisdictions.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not guarantee that we will be able to obtain or maintain regulatory approval in any other jurisdiction. For example, even if the FDA or EMA grants marketing approval of a product candidate, comparable regulatory authorities in foreign jurisdictions must also approve the manufacturing, marketing and promotion of the product candidate in those countries. However, a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in others. Approval procedures vary among jurisdictions and can involve requirements and administrative review periods different from those in the United States, including additional preclinical studies or clinical trials as clinical trials conducted in one jurisdiction may not be accepted by regulatory authorities in other jurisdictions. In many jurisdictions outside the United States, a product candidate must be approved for reimbursement before it can be approved for sale in that jurisdiction. In some cases, the price that we intend to charge for our products is also subject to approval.

Obtaining foreign regulatory approvals and compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our products in certain countries. If we or any partner we work with fail to comply with the regulatory requirements in international markets or fail to receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of our product candidates will be harmed.

Even if our product candidates receive regulatory approval, they will be subject to significant post-marketing regulatory requirements.

Any regulatory approvals that we may receive for our product candidates will require surveillance to monitor the safety and efficacy of the product candidate, may contain significant limitations related to use restrictions for specified age groups, warnings, precautions or contraindications, and may include burdensome post-approval study or risk management requirements. For example, the FDA may require a REMS in order to approve our product candidates, which could entail requirements for a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if the FDA or foreign regulatory authorities approve our product candidates, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion, import, export and recordkeeping for our product candidates will be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with current good manufacturing practices ("cGMPs") and good clinical practices ("GCPs"), for any clinical trials that we conduct post-approval. In addition, manufacturers of drug products and their facilities are subject to continual review and periodic inspections by the FDA and other regulatory authorities for compliance with cGMP regulations and standards. If we or a regulatory agency discover previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facilities where the product is manufactured, a regulatory agency may impose restrictions on that product, the manufacturing facility or us, including requiring recall or withdrawal of the product from the market or suspension of manufacturing. In addition, failure to comply with FDA and foreign regulatory requirements may, either before or after product approval, if any, subject our company to administrative or judicially imposed sanctions, including:

- restrictions on our ability to conduct clinical trials, including full or partial clinical holds on ongoing or planned trials;
- restrictions on the products, manufacturers or manufacturing process;
- warning or untitled letters;
- civil and criminal penalties;
- injunctions;
- suspension or withdrawal of regulatory approvals;
- product seizures, detentions or import bans;
- voluntary or mandatory product recalls and publicity requirements;
- total or partial suspension of production;
- imposition of restrictions on operations, including costly new manufacturing requirements; and
- refusal to approve pending BLAs or supplements to approved BLAs.

The occurrence of any event or penalty described above may inhibit our ability to commercialize our product candidates and generate revenue.

We may not be able to obtain orphan drug designation or obtain or maintain orphan drug exclusivity for our product candidates and, even if we do, that exclusivity may not prevent the FDA or the EMA, from approving competing products.

Regulatory authorities in some jurisdictions, including the United States and the European Union, may designate drugs for relatively small patient populations as orphan drugs. Under the Orphan Drug

Act, the FDA may designate a product as an orphan drug if it is a drug intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals annually in the United States, or a patient population greater than 200,000 in the United States where there is no reasonable expectation that the cost of developing the drug will be recovered from sales in the United States. We have obtained orphan drug designation for EG and EGE in the United States and for ISM in the European Union. We expect to seek orphan drug designation for AK002 for other gastrointestinal diseases and may seek orphan drug designations for other indications or for other of our product candidates. There can be no assurances that we will be able to obtain such designations.

In the United States, orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages and user-fee waivers. In addition, if a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan drug exclusivity. Orphan drug exclusivity in the United States provides that the FDA may not approve any other applications, including a full BLA or NDA, to market the same drug for the same indication for seven years, except in limited circumstances. The applicable exclusivity period is ten years in Europe. The European exclusivity period can be reduced to six years if a drug no longer meets the criteria for orphan drug designation or if the drug is sufficiently profitable so that market exclusivity is no longer justified.

Even if we obtain orphan drug designation for a product candidate, we may not be able to obtain or maintain orphan drug exclusivity for that product candidate. We may not be the first to obtain marketing approval of any product candidate for which we have obtained orphan drug designation for the orphan-designated indication due to the uncertainties associated with developing pharmaceutical products. In addition, exclusive marketing rights in the United States may be limited if we seek approval for an indication broader than the orphan-designated indication or may be lost if the FDA later determines that the request for designation was materially defective or if we are unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition. Further, even if we obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because different drugs with different active moieties may be approved for the same condition. Even after an orphan drug is approved, the FDA can subsequently approve the same drug with the same active moiety for the same condition if the FDA concludes that the later drug is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care or the manufacturer of the product with orphan exclusivity is unable to maintain sufficient product quantity. Orphan drug designation neither shortens the development time or regulatory review time of a drug nor gives the drug any advantage in the regulatory review or approval process.

Although we may seek a breakthrough therapy designation for AK002 or one or more of our other product candidates, we might not receive such designation, and even if we do, such designation may not lead to a faster development or regulatory review or approval process.

We may seek a breakthrough therapy designation for AK002 in one or more indications or for other product candidates. A breakthrough therapy is defined as a drug that is intended, alone or in combination with one or more other drugs, to treat a serious condition, and preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. For drugs and biologics that have been designated as breakthrough therapies, interaction and communication between the FDA and the sponsor of the trial can help to identify the most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens. Drugs designated as breakthrough therapies by the FDA may also be eligible for priority review if supported by clinical data at the time the NDA is submitted to the FDA.

Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if we believe that one of our product candidates meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. Even if we receive breakthrough therapy designation, the receipt of such designation for a product candidate may not result in a faster development or regulatory review or approval process compared to drugs considered for approval under conventional FDA procedures and does not assure ultimate approval by the FDA. In addition, even if one or more of our product candidates qualify as breakthrough therapies, the FDA may later decide that the product candidates no longer meet the conditions for qualification or decide that the time period for FDA review or approval will not be shortened.

We may face difficulties from changes to current regulations and future legislation.

Existing regulatory policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our 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 and we may not achieve or sustain profitability.

More recently, President Donald Trump has made statements that suggest he plans to seek repeal of all or portions of the Affordable Care Act (“ACA”), and has stated that he will ask Congress to replace the current legislation with new legislation. There is uncertainty with respect to the impact President Trump’s Administration may have, if any, and any changes likely will take time to unfold, and could have an impact on coverage and reimbursement for healthcare items and services covered by plans that were authorized by the ACA. However, we cannot predict the ultimate content, timing or effect of any healthcare reform legislation or the impact of potential legislation on us. In addition, other legislative changes have been proposed and adopted since the ACA was enacted. These changes included aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, effective April 1, 2013, which, due to subsequent legislative amendments, will stay in effect through 2025 unless additional Congressional action is taken. In January 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, reduced Medicare payments to several providers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws may result in additional reductions in Medicare and other healthcare funding, which could have a material adverse effect on customers for our drugs, if approved, and accordingly, our financial operations.

We expect that the ACA, as well as other healthcare reform measures that 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 any approved product. Any reduction in reimbursement from Medicare 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 our product candidates.

Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for biotechnology products. We cannot be sure whether additional legislative changes will be enacted, or whether FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals of our product candidates, if any, may be. In addition, increased scrutiny by the U.S. Congress of the FDA’s approval process may significantly delay or prevent marketing approval, as well as subject us to more stringent product labeling and post-marketing testing and other requirements.

Our relationships with customers and third-party payors will be subject to applicable anti-kickback, fraud and abuse, transparency and other healthcare laws and regulations, which could expose us to, among other things, criminal sanctions, civil penalties, contractual damages, reputational harm, administrative burdens and diminished profits and future earnings.

Healthcare providers and third-party payors play a primary role in the recommendation and prescription of any product candidates for which we obtain marketing approval. Our future arrangements with third-party payors and customers may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we market, sell and distribute our products for which we obtain marketing approval. Restrictions under applicable federal and state healthcare laws and regulations, include the following:

- the federal Anti-Kickback Statute prohibits, among other things, persons and entities from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made under a federal healthcare program such as Medicare and Medicaid;
- the federal false claims and civil monetary penalties laws, including the civil False Claims Act, impose criminal and civil penalties, including civil whistleblower or qui tam actions, against individuals or entities for, among other things, knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government;
- the federal Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), imposes criminal and civil liability for, among other things, executing or attempting to execute a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act and its implementing regulations, also imposes obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information;
- the federal Physician Payments Sunshine Act requires applicable manufacturers of covered drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children’s Health Insurance Program, with specific exceptions, to annually report to CMS information regarding payments and other transfers of value to physicians and teaching hospitals as well as information regarding ownership and investment interests held by physicians and their immediate family members. The information was made publicly available on a searchable website in September 2014 and will be disclosed on an annual basis; and
- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers.

Some state laws require biotechnology companies to comply with the biotechnology industry’s voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government and may require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures. State and

foreign laws also govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Efforts to ensure that our current and future business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. 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 penalties, including civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, exclusion from participation in government funded healthcare programs, such as Medicare and Medicaid, contractual damages, reputational harm, diminished profits and future earnings and the curtailment or restructuring of our operations. Defending against any such actions can be costly, time-consuming and may require significant financial and personnel resources. Therefore, even if we are successful in defending against any such actions that may be brought against us, our business may be impaired. Further, if any of the physicians or other healthcare providers or entities with whom we expect to do business is found to be not in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs.

Our employees may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk of employee fraud or other misconduct. Misconduct by employees could include failures to comply with FDA regulations, provide accurate information to the FDA, comply with federal and state health care fraud and abuse laws and regulations, accurately report financial information or data or disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the health care industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, 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. Employee misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. We intend to adopt a code of conduct prior to the closing of this offering, 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 comply with these 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 significant fines or other sanctions.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on our business.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological materials. Our operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting

damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of hazardous and flammable materials, including chemicals and biological materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research, development or commercialization efforts. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

Our business activities may be subject to the Foreign Corrupt Practices Act ("FCPA"), and similar anti-bribery and anti-corruption laws of other countries in which we operate.

We have conducted and have ongoing studies in international locations, and may in the future initiate additional studies in countries other than the United States. Our business activities may be subject to the FCPA and similar anti-bribery or anti-corruption laws, regulations or rules of other countries in which we operate. The FCPA generally prohibits offering, promising, giving or authorizing others to give anything of value, either directly or indirectly, to a non-U.S. government official in order to influence official action or otherwise obtain or retain business. The FCPA also requires public companies to make and keep books and records that accurately and fairly reflect the transactions of the corporation and to devise and maintain an adequate system of internal accounting controls. Our business is heavily regulated and therefore involves significant interaction with public officials, including officials of non-U.S. governments. Additionally, in many other countries, the health care providers who prescribe pharmaceuticals are employed by their government, and the purchasers of pharmaceuticals are government entities; therefore, our dealings with these prescribers and purchasers are subject to regulation under the FCPA. Recently the Securities and Exchange Commission ("SEC") and Department of Justice have increased their FCPA enforcement activities with respect to biotechnology and pharmaceutical companies. There is no certainty that all of our employees, agents or contractors, or those of our affiliates, will comply with all applicable laws and regulations, particularly given the high level of complexity of these laws. Violations of these laws and regulations could result in fines, criminal sanctions against us, our officers or our employees, the closing down of our facilities, requirements to obtain export licenses, cessation of business activities in sanctioned countries, implementation of compliance programs and prohibitions on the conduct of our business. Any such violations could include prohibitions on our ability to offer our products in one or more countries and could materially damage our reputation, our brand, our international expansion efforts, our ability to attract and retain employees and our business, prospects, operating results and financial condition.

Risks Related to Employee Matters, Managing Our Growth and Other Risks Related to Our Business

Our success is highly dependent on the services of our President and Chief Executive Officer, Dr. Robert Alexander, and our Chief Financial Officer and Chief Operating Officer, Dr. Adam Tomasi, and our ability to attract and retain highly skilled executive officers and employees.

To succeed, we must recruit, retain, manage and motivate qualified clinical, scientific, technical and management personnel, and we face significant competition for experienced personnel. We are highly dependent on the principal members of our management and scientific and medical staff,

particularly our President and Chief Executive Officer, Dr. Robert Alexander, and our Chief Financial Officer and Chief Operating Officer, Dr. Adam Tomasi. If we do not succeed in attracting and retaining qualified personnel, particularly at the management level, it could adversely affect our ability to execute our business plan and harm our operating results. In particular, the loss of one or more of our executive officers, including Dr. Alexander or Dr. Tomasi, could be detrimental to us if we cannot recruit suitable replacements in a timely manner. The competition for qualified personnel in the biotechnology field is intense and as a result, we may be unable to continue to attract and retain qualified personnel necessary for the future success of our business. In addition to competition for personnel, the San Francisco Bay Area in particular is characterized by a high cost of living. We could in the future have difficulty attracting experienced personnel to our company and may be required to expend significant financial resources in our employee recruitment and retention efforts.

Many of the other biotechnology companies that we compete against for qualified personnel have greater financial and other resources, different risk profiles and a longer history in the industry than we do. They also may provide more diverse opportunities and better prospects for career advancement. Some of these characteristics may be more appealing to high-quality candidates than what we have to offer. If we are unable to continue to attract and retain high-quality personnel, the rate and success at which we can discover, develop and commercialize our product candidates will be limited and the potential for successfully growing our business will be harmed.

If we are unable to establish sales or marketing capabilities or enter into agreements with third parties to sell or market our product candidates, we may not be able to successfully sell or market our product candidates that obtain regulatory approval.

We currently do not have and have never had a marketing or sales team for the marketing, sales and distribution of any of our product candidates that may be able to obtain regulatory approval. In order to commercialize any product candidates, we must build marketing, sales, distribution, managerial and other non-technical capabilities or make arrangements with third parties to perform these services for each of the territories in which we may have approval to sell or market our product candidates. We may not be successful in accomplishing these required tasks.

Establishing an internal sales or marketing team with technical expertise and supporting distribution capabilities to commercialize our product candidates will be expensive and time-consuming, and will require significant attention of our executive officers to manage. Any failure or delay in the development of our internal sales, marketing and distribution capabilities could adversely impact the commercialization of any of our product candidates that we obtain approval to market, if we do not have arrangements in place with third parties to provide such services on our behalf. Alternatively, if we choose to collaborate, either globally or on a territory-by-territory basis, with third parties that have direct sales forces and established distribution systems, either to augment our own sales force and distribution systems or in lieu of our own sales force and distribution systems, we will be required to negotiate and enter into arrangements with such third parties relating to the proposed collaboration. If we are unable to enter into such arrangements when needed on acceptable terms, or at all, we may not be able to successfully commercialize any of our product candidates that receive regulatory approval or any such commercialization may experience delays or limitations. If we are unable to successfully commercialize our approved product candidates, either on our own or through collaborations with one or more third parties, our future product revenue will suffer and we may incur significant additional losses.

In order to successfully implement our plans and strategies, we will need to grow the size of our organization, and we may experience difficulties in managing this growth.

At December 31, 2017, we had 39 full-time employees, including 30 employees engaged in research and development. In order to successfully implement our development and commercialization

plans and strategies, and as we transition into operating as a public company, we expect to need additional managerial, operational, sales, marketing, financial and other personnel. Future growth would impose significant added responsibilities on members of management, including:

- identifying, recruiting, integrating, maintaining and motivating additional employees;
- managing our internal development efforts effectively, including the clinical and FDA review process for AK002 and any other future product candidates, while complying with any contractual obligations to contractors and other third parties we may have; and
- improving our operational, financial and management controls, reporting systems and procedures.

Our future financial performance and our ability to successfully develop and, if approved, commercialize AK002 and any other future product candidates will depend, in part, on our ability to effectively manage any future growth, and our management may also have to divert a disproportionate amount of its attention away from day-to-day activities in order to devote a substantial amount of time to managing these growth activities.

We currently rely, and for the foreseeable future will continue to rely, in substantial part on certain independent organizations, advisors and consultants to provide certain services, including substantially all aspects of clinical management and manufacturing. We cannot assure you that the services of independent organizations, advisors and consultants will continue to be available to us on a timely basis when needed, or that we can find qualified replacements. In addition, if we are unable to effectively manage our outsourced activities or if the quality or accuracy of the services provided by third party service providers is compromised for any reason, our clinical trials may be extended, delayed or terminated, and we may not be able to obtain marketing approval of AK002 and any other future product candidates or otherwise advance our business. We cannot assure you that we will be able to manage our existing third party service providers or find other competent outside contractors and consultants on economically reasonable terms, or at all.

If we are not able to effectively expand our organization by hiring new employees and/or engaging additional third party service providers, we may not be able to successfully implement the tasks necessary to further develop and commercialize AK002 and any other future product candidates and, accordingly, may not achieve our research, development and commercialization goals.

We may experience disruptions and delays or incur financial damages as a result of system failures or security breaches.

Despite the implementation of security measures, any of the internal computer systems belonging to us or our third-party service providers are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failure. Any system failure, accident or security breach that causes interruptions in our own or in third-party service providers' operations could result in a material disruption of our drug discovery and development programs. A system failure or security breach that causes the loss of clinical trial data from completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs in order to recover or reproduce the lost data. In addition, to the extent that any disruption or security breach results in a loss or damage to our data or applications, or inappropriate disclosure of confidential or proprietary information, we may incur liability as a result, our drug discovery programs and competitive position may be adversely affected, and further development of our product candidates may be delayed. Any such disruption, failure or security breach could also cause us to incur additional costs to remedy the damages that arise from such disruption, failure or security breach.

Our insurance policies may not be adequate to compensate us for the potential losses arising from any such disruption, failure or security breach. In addition, such insurance may not be available to us in the future on economically reasonable terms, or at all. Further, our insurance may not cover all claims made against us and could have high deductibles in any event, and defending a suit, regardless of its merit, could be costly and divert management attention.

Our operations are vulnerable to interruption by fire, earthquake, power loss, telecommunications failure, terrorist activity and other events beyond our control, which could harm our business.

Our facility is located in a seismically active region, which also experiences large scale wildfires from time to time. We have not undertaken a systematic analysis of the potential consequences to our business and financial results from a major earthquake, fire, power loss, terrorist activity or other disasters and do not have a recovery plan for such disasters. In addition, we do not carry sufficient insurance to compensate us for actual losses from interruption of our business that may occur, and any losses or damages incurred by us could harm our business. We maintain multiple copies of each of our antibody sequences and electronic data records, most of which we maintain at our headquarters. If our facility were impacted by a seismic event, we could lose all our antibody sequences, which would have an adverse effect on our ability to perform our obligations under our collaborations and discover new targets.

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

Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an “ownership change” (generally defined as a greater than 50 percentage points change (by value) in the ownership of its equity over a rolling three-year period), the corporation’s ability to use its pre-change net operating loss carryforwards and certain other pre-change tax attributes to offset its post-change income and taxes may be limited. We may have experienced such ownership changes in the past, and we may experience ownership changes in the future as a result of this offering or subsequent shifts in our stock ownership, some of which are outside our control. As of December 31, 2017, we had federal net operating loss carryforwards of approximately $61.8 million, and our ability to utilize those net operating loss carryforwards could be limited by an “ownership change” as described above, which could result in increased tax liability to our company.

Risks Related to Intellectual Property

If we are unable to obtain or protect intellectual property rights, we may not be able to compete effectively in our market.

Our success depends in significant part on our and our current or future licensors’ ability to establish, maintain and protect patents and other intellectual property rights and operate without infringing the intellectual property rights of others. We have filed numerous patent applications both in the United States and in foreign jurisdictions to obtain patent rights to inventions we have developed. We have also licensed from third parties rights to patent portfolios. Some of these licenses give us the right to prepare, file and prosecute patent applications and maintain and enforce patents we have licensed, and other licenses may not give us such rights.

The patent prosecution process is expensive and time-consuming, and we and our current or future licensors may not be able to prepare, file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we or our current and future licensors 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. Moreover, in some circumstances, we may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the patents, covering technology that we license from third parties and are reliant on our current and future licensors. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. If our current or future licensors fail to establish, maintain or protect such patents and other intellectual property rights, such rights may be reduced or eliminated. If our current and future licensors 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.

The patent position of biotechnology companies generally is highly uncertain, involves complex legal and factual questions and has in recent years been the subject of much litigation. As a result, the issuance, scope, validity, enforceability and commercial value of our and our current or future licensors' patent rights are highly uncertain. Our and our current or future licensors' pending and future patent applications may not result in patents being issued which protect our technology or products, in whole or in part, or which effectively prevent others from commercializing competitive technologies and products. The patent examination process may require us or our current and future licensors to narrow the scope of the claims of our or our current and future licensors' pending and future patent applications, which may limit the scope of patent protection that may be obtained.

We cannot assure you that all of the potentially relevant prior art relating to our patents and patent applications has been found. If such prior art exists, it can invalidate a patent or prevent a patent from issuing from a pending patent application. Even if patents do successfully issue and even if such patents cover our product candidates, third parties may initiate an opposition, interference, re-examination, post-grant review, *inter partes* review, nullification or derivation action 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. Our and our current or future licensors' patent applications cannot be enforced against third parties practicing the technology claimed in such applications unless and until a patent issues from such applications, and then only to the extent the issued claims cover the technology.

Because patent applications in the United States and most other countries are confidential for a period of time after filing, and some remain so until issued, we cannot be certain that we or our current and future licensors were the first to file any patent application related to a product candidate. Furthermore, if third parties have filed such patent applications on or before March 15, 2013, an interference proceeding in the United States can be initiated by such third parties to determine who was the first to invent any of the subject matter covered by the patent claims of our applications. If third parties have filed such applications after March 15, 2013, a derivation proceeding in the United States can be initiated by such third parties to determine whether our invention was derived from theirs. Even where we have a valid and enforceable patent, we may not be able to exclude others from practicing our invention where the other party can show that they used the invention in commerce before our filing date or the other party benefits from a compulsory license. In addition, patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest U.S. filing date. Various extensions may be available, but the life of a patent, and the protection it affords, is limited. Even if patents covering our product candidates are obtained, once the patent life has expired for a product, we may be open to competition from competitive medications, including biosimilar or generic medications. For example, some of the patents that we exclusively licensed from The Johns Hopkins University will expire in 2021, one of our owned patent families that claims one of the product candidates will expire in 2035 in the United States and similar patent applications are pending in foreign jurisdictions with a projected expiration date in 2034, at which time the underlying technology covered by such patents can be used by any third party, including competitors. Although the patent term extensions under the Hatch-Waxman Act in the United

States may be available to extend the patent term, we cannot provide any assurances that any such patent term extension will be obtained and, if so, for how long.

Due to the amount of time required for the development, testing and regulatory review of new product 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 products similar or identical to ours. We expect to seek extensions of patent terms where these are available in any countries where we are prosecuting patents. This includes in the United States under the Drug Price Competition and Patent Term Restoration Act of 1984, which permits a patent term extension of up to five years beyond the expiration of the patent. However the applicable authorities, including the FDA and the U.S. Patent and Trademark Office ("USPTO") in the United States, and any equivalent foreign regulatory authority, may not agree with our assessment of whether such extensions are available, and may refuse to grant extensions to our patents, or may grant more limited extensions than we request. If this occurs, our competitors may take advantage of our investment in development and clinical trials by referencing our clinical and preclinical data and launch their product earlier than might otherwise be the case.

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

Filing, prosecuting, enforcing and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our or our current and future licensors' intellectual property rights may not exist in some countries outside the United States or may be less extensive in some countries than in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Consequently, we and our current and future licensors may not be able to prevent third parties from practicing our and our current or future licensors' inventions in all countries outside the United States, or from selling or importing products made using our and our current or future licensors' inventions in and into the United States or other jurisdictions. Competitors may use our and our current or future licensors' technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we and our current and future licensors have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our product candidates, and our and our current or future licensors' patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biotechnology, which could make it difficult for us and our current and future licensors to stop the infringement of our and our current or future licensors' patents or marketing of competing products in violation of our and our current or future licensors' proprietary rights generally. Proceedings to enforce our and our current or future licensors' patent rights in foreign jurisdictions could result in substantial costs and divert our and our current or future licensors' efforts and attention from other aspects of our business, could put our and our current or future licensors' patents at risk of being invalidated or interpreted narrowly and our and our current or future licensors' patent applications at risk of not issuing and could provoke third parties to assert claims against us or our current and future licensors. We or our current and future licensors may not prevail in any lawsuits that we or our current and future licensors initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful.

Many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, many countries limit the enforceability of patents against

government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If we or our current and future licensors are forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired, and our business, financial condition, results of operations and prospects may be adversely affected.

Changes in patent law could diminish the value of patents in general, thereby impairing our ability to protect our product candidates.

Obtaining and enforcing patents in the biopharmaceutical industry involves both technological and legal complexity and is therefore costly, time-consuming and inherently uncertain. Changes in either the patent laws or interpretation of the patent laws in the United States could increase the uncertainties and costs. Recent patent reform legislation in the United States and other countries, including the Leahy-Smith America Invents Act ("Leahy-Smith Act"), signed into law on September 16, 2011, could increase those uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents. The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications are prosecuted, redefine prior art and provide more efficient and cost-effective avenues for competitors to challenge the validity of patents. These include allowing third-party submission of prior art to the USPTO during patent prosecution and additional procedures to attack the validity of a patent by USPTO administered post-grant proceedings, including post-grant review, *inter partes* review and derivation proceedings. After March 15, 2013, under the Leahy-Smith Act, the United States transitioned to a first inventor to file system in which, assuming that the other statutory requirements are met, the first inventor to file a patent application will be entitled to the patent on an invention regardless of whether a third party was the first to invent the claimed invention. However, the Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

The U.S. Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. Depending on future actions by the U.S. Congress, the U.S. courts, the USPTO and the relevant law-making bodies in other countries, 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.

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 and annuity fees on any issued patent are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of the patent. The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance 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. Non-compliance events that could result in abandonment or lapse of a patent or patent application include failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. If we or our current and future

licensors fail to maintain the patents and patent applications covering our product candidates, our patent protection could be reduced or eliminated and our competitors might be better able to enter the market with competing products.

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

We cannot assure you that competitors will not infringe our trademarks or that we will have adequate resources to enforce our trademarks. In addition, we do not own any registered trademarks for the mark "ALLAKOS." We cannot assure you that any future trademark applications that we will file will be approved. During trademark registration proceedings, we may receive rejections and although we are given an opportunity to respond to those rejections, we may be unable to overcome such rejections. In addition, in proceedings before the USPTO and in proceedings before comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceeding may be filed against our trademarks and our trademarks may not survive such proceedings, which may force us to rebrand our name.

If we breach the license agreements related to our product candidates, we could lose the ability to continue the development and commercialization of our product candidates.

Our commercial success depends upon our ability, and the ability of our current and future licensors, to develop, manufacture, market and sell our product candidates and use our and our current or future licensors' wholly-owned technologies without infringing the proprietary rights of third parties. A third party may hold intellectual property, including patent rights that are important or necessary to the development of our products. As a result, we are a party to a number of technology licenses that are important to our business. For example, we have obtained an exclusive license under certain intellectual property related to Siglec-8 from The Johns Hopkins University to develop certain products and a non-exclusive license from BioWa Inc. and Lonza Sales AG ("Lonza") to develop and commercialize products manufactured in a particular mammalian host cell line. If we fail to comply with the obligations under these agreements, including payment and diligence terms, our current and future licensors may have the right to terminate these agreements, in which event we may not be able to develop, manufacture, market or sell any product that is covered by these agreements or may face other penalties under the agreements. Such an occurrence could adversely affect the value of the product candidate being developed under any such agreement. Termination of these agreements or reduction or elimination of our rights under these agreements may result in our having to negotiate new or reinstated agreements, which may not be available to us on equally favorable terms, or at all, or cause us to lose our rights under these agreements, including our rights to intellectual property or technology important to our development programs.

Disputes may arise regarding intellectual property subject to a licensing agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- the sublicensing of patent and other rights under any collaboration relationships we might enter into in the future;
- our diligence obligations under the license agreement and what activities satisfy those diligence obligations;

- the inventorship and ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our current and future licensors and us; and
- the priority of invention of patented technology.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates.

Third parties may initiate legal proceedings against us alleging that we infringe their intellectual property rights or we may initiate legal proceedings against third parties to challenge the validity or scope of intellectual property rights controlled by third parties, the outcome of which would be uncertain and could have an adverse effect on the success of our business.

Third parties may initiate legal proceedings against us or our current and future licensors alleging that we or our current and future licensors infringe their intellectual property rights, or we or our current and future licensors may initiate legal proceedings against third parties to challenge the validity or scope of intellectual property rights controlled by third parties, including in oppositions, interferences, reexaminations, *inter partes* reviews or derivation proceedings in the United States or other jurisdictions. These proceedings can be expensive and time-consuming, and many of our or our current and future licensors' adversaries in these proceedings may have the ability to dedicate substantially greater resources to prosecuting these legal actions than we or our current and future licensors.

Parties making claims against us may obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize one or more of our product candidates. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of management and employee resources from our business. An unfavorable outcome could require us or our current and future licensors to cease using the related technology or developing or commercializing our product candidates, or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us or our current and future licensors a license on commercially reasonable terms or at all. Even if we or our current and future licensors obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us or our current and future licensors. In addition, we could be found liable for monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed a patent. 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.

We may be subject to claims by third parties asserting that our employees or we have misappropriated their intellectual property, or claiming ownership of what we regard as our own intellectual property.

Many of our employees, including our senior management, were previously employed at other biopharmaceutical companies, including potential competitors. Some of these employees executed proprietary rights, non-disclosure and/or non-competition agreements in connection with such previous employment. Although we try to ensure that our employees do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or these employees have used or disclosed confidential information or intellectual property, including trade secrets or other proprietary information, of any such employee's former employer. Litigation may be necessary to defend against these claims.

If we fail in prosecuting or defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel or sustain damages. Such intellectual

property rights could be awarded to a third party, and we could be required to obtain a license from such third party to commercialize our technology or products. Such a license may not be available on commercially reasonable terms or at all. Even if we successfully prosecute or defend against such claims, litigation could result in substantial costs and distract management.

Our inability to protect our confidential information and trade secrets would harm our business and competitive position.

In addition to seeking patents for some of our technology and products, we also rely on trade secrets, including unpatented know-how, technology and other proprietary information, to maintain our competitive position. Trade secrets can be difficult to protect. We seek to protect these trade secrets, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to them, such as our employees, contract manufacturers, consultants, advisors and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants. Despite these efforts, any of the 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. Misappropriation or unauthorized disclosure of our trade secrets could significantly affect our competitive position and may have a material adverse effect on our business. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. Some courts both within and outside the United States may be less willing or unwilling to protect trade secrets. Furthermore, trade secret protection does not prevent competitors from independently developing substantially equivalent information and techniques and we cannot guarantee that our competitors will not independently develop substantially equivalent information and techniques. If a competitor lawfully obtained or independently developed any of our trade secrets, we would have no right to prevent such competitor from using that technology or information to compete with us. Failure on our part to adequately protect our trade secrets and our confidential information would harm our business and our competitive position.

Risks Related to Our Dependence on Third Parties

We rely on third parties to conduct our clinical trials and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials, research and studies.

We do not have the ability to independently conduct our clinical trials. We currently rely on third parties, such as CROs, clinical data management organizations, medical institutions and clinical investigators, to conduct our clinical trials of AK002 and expect to continue to rely upon third parties to conduct additional clinical trials of AK002 and our other product candidates. Third parties have a significant role in the conduct of our clinical trials and the subsequent collection and analysis of data. These third parties are not our employees, and except for remedies available to us under our agreements, we have limited ability to control the amount or timing of resources that any such third party will devote to our clinical trials. Some of these third parties may terminate their engagements with us at any time. If we need to enter into alternative arrangements, it would delay our drug development activities.

Our reliance on these third parties for research and development activities will reduce our control over these activities but will not relieve us of our regulatory responsibilities. For example, we will remain responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, the FDA requires us to comply with GCP standards, regulations for conducting, recording and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and

confidentiality of trial participants are protected. The EMA also requires us to comply with similar standards. Regulatory authorities enforce these GCP requirements through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of our CROs fail to comply with applicable GCP requirements, the clinical data generated in our clinical trials may be deemed unreliable and the FDA, EMA or comparable 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 regulations. In addition, our clinical trials must be conducted with product produced under current cGMP regulations. Our failure to comply with these regulations may require us to repeat clinical trials, which would delay the marketing approval process. We also are required to register certain ongoing clinical trials and post the results of certain completed clinical trials on a government-sponsored database, ClinicalTrials.gov, within certain timeframes. Failure to do so can result in fines, adverse publicity and civil and criminal sanctions.

The third parties we rely on for these services may also have relationships with other entities, some of which may be our competitors. If these third parties do not successfully carry out their contractual duties, meet expected deadlines or conduct our clinical trials in accordance with regulatory requirements or our stated protocols, we will not be able to obtain, or may be delayed in obtaining, marketing approvals for our product candidates and will not be able to, or may be delayed in our efforts to, successfully commercialize our product candidates.

We contract with third parties for the production of our product candidates for preclinical studies and, in the case of AK002, our ongoing clinical trials, and expect to continue to do so for additional clinical trials and ultimately for commercialization. This reliance on third parties increases the risk that we will not have sufficient quantities of our product candidates or drugs or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.

We do not currently have the infrastructure or internal capability to manufacture supplies of our product candidates for use in development and commercialization. We rely, and expect to continue to rely, on third-party manufacturers for the production of our product candidates for preclinical studies and clinical trials under the guidance of members of our organization. In the case of AK002, we rely on a single third-party manufacturer, Lonza, and we currently have no alternative manufacturer in place. We do not have long-term supply agreements and we purchase our required drug product on a purchase order basis. If we were to experience an unexpected loss of supply of AK002, or any of our other product candidates, for any reason, whether as a result of manufacturing, supply or storage issues or otherwise, we could experience delays, disruptions, suspensions or terminations of, or be required to restart or repeat, any pending or ongoing clinical trials. Replacement of our sole manufacturer of AK002 would result in substantial delay and interrupt our clinical trials involving AK002.

We expect to continue to rely on third-party manufacturers for the commercial supply of any of our product candidates for which we obtain marketing approval. We may be unable to maintain or establish required agreements with third-party manufacturers or to do so on acceptable terms. Even if we are able to establish agreements with third-party manufacturers, reliance on third-party manufacturers entails additional risks, including:

- the possible failure of the third party to manufacture our product candidate according to our schedule, or at all, including if our third-party contractors give greater priority to the supply of other products over our product candidates or otherwise do not satisfactorily perform according to the terms of the agreements between us and them;
- the possible termination or nonrenewal of agreements by our third-party contractors at a time that is costly or inconvenient for us;

- the possible breach by the third-party contractors of our agreements with them;
- the failure of third-party contractors to comply with applicable regulatory requirements;
- the possible failure of the third party to manufacture our product candidates according to our specifications;
- the possible mislabeling of clinical supplies, potentially resulting in the wrong dose amounts being supplied or active drug or placebo not being properly identified;
- the possibility of clinical supplies not being delivered to clinical sites on time, leading to clinical trial interruptions, or of drug supplies not being distributed to commercial vendors in a timely manner, resulting in lost sales; and
- the possible misappropriation of our proprietary information, including our trade secrets and know-how.

We do not have complete control over all aspects of the manufacturing process of, and are dependent on, our contract manufacturing partners, including Lonza, for compliance with cGMP regulations for manufacturing both active drug substances and finished drug products. Third-party manufacturers may not be able to comply with cGMP regulations or similar regulatory requirements outside of the United States. If our contract manufacturers, including Lonza, cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or others, they will not be able to secure and/or maintain marketing approval for their manufacturing facilities. In addition, we do not have control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain marketing approval for or market our product candidates, if approved. Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of product candidates or drugs, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our drugs and harm our business and results of operations.

Our current and anticipated future dependence upon others for the manufacture of our product candidates or drugs may adversely affect our future profit margins and our ability to commercialize any drugs that receive marketing approval on a timely and competitive basis.

We may not gain the efficiencies we expect from further scale-up of manufacturing of AK002, and our third-party manufacturers may be unable to successfully scale-up manufacturing in sufficient quality and quantity for AK002 or our other product candidates, which could delay or prevent the conducting of our clinical trials or the development or commercialization of our other product candidates.

Our third-party manufacturer, Lonza, is currently manufacturing AK002 at a scale that is sufficient for us to complete our planned clinical trials and, if we receive marketing approval, to commercialize AK002 for the indications we are currently targeting. However, we may consider increasing the batch scale to gain cost efficiencies. If Lonza is unable to scale-up the manufacture of AK002 at such time, we may not gain such cost efficiencies and may not realize the benefits that would typically be expected from further scale-up of manufacturing of AK002.

In addition, in order to conduct clinical trials of any of our other product candidates, we may need to manufacture them in large quantities. Our third-party manufacturers, including Lonza, may be unable

to successfully increase the manufacturing capacity for any of these product candidates in a timely or cost-effective manner, or at all. In addition, quality issues may arise during scale-up activities. If our third-party manufacturers are unable to successfully scale up the manufacture of our other product candidates in sufficient quality and quantity, the development, testing and clinical trials of that product candidate may be delayed or become infeasible, and marketing approval or commercial launch of any resulting product may be delayed or not obtained, which could significantly harm our business.

Changes in methods of product candidate manufacturing or formulation may result in additional costs or delay.

As product candidates progress through preclinical and late stage clinical trials to marketing approval and commercialization, it is common that various aspects of the development program, such as manufacturing methods and formulation, are altered along the way in an effort to optimize yield, manufacturing batch size, minimize costs and achieve consistent quality and results. Such changes carry the risk that they will not achieve these intended objectives. Any of these changes could cause our product candidates to perform differently and affect the results of planned clinical trials or other future clinical trials conducted with the altered materials. This could delay completion of clinical trials, require the conduct of bridging clinical trials or the repetition of one or more clinical trials, increase clinical trial costs, delay approval of our product candidates and jeopardize our ability to commercialize our product candidates and generate revenue.

The manufacture of biologics is complex and our third-party manufacturers may encounter difficulties in production. If any of our third-party manufacturers encounter such difficulties, our ability to provide adequate supply of our product candidates for clinical trials or our products for patients, if approved, could be delayed or prevented.

Manufacturing biologics, especially in large quantities, is complex and may require the use of innovative technologies to handle living cells. Each lot of an approved biologic must undergo thorough testing for identity, strength, quality, purity and potency. Manufacturing biologics requires facilities specifically designed for and validated for this purpose, and sophisticated quality assurance and quality control procedures are necessary. Slight deviations anywhere in the manufacturing process, including filling, labeling, packaging, storage and shipping and quality control and testing, may result in lot failures, product recalls or spoilage. Lonza, our current third-party manufacturer, has, and our future third-party manufacturers may have, multiple locations at which they conduct manufacturing. However, AK002 and our other product candidates are currently only being manufactured at one of Lonza's locations. If this location becomes unavailable at its anticipated capacity or the location of the manufacture of AK002 or our other product candidates is changed for any reason, it could result in a delay or disruption to the manufacturing process or lead to difficulties that we did not experience at the original manufacturing location. When changes are made to the manufacturing process, we may be required to provide preclinical and clinical data showing the comparable identity, strength, quality, purity or potency of the products before and after such changes. If microbial, viral or other contaminations are discovered at the facilities of our manufacturer, such facilities may need to be closed for an extended period of time to investigate and remedy the contamination, which could delay clinical trials and adversely harm our business. The use of biologically derived ingredients can also lead to allegations of harm, including infections or allergic reactions, or closure of product facilities due to possible contamination. If our manufacturers are unable to produce sufficient quantities for clinical trials or for commercialization as a result of these challenges, our development and commercialization efforts would be impaired, which would have an adverse effect on our business, financial condition, results of operations and growth prospects.

If we engage in future acquisitions or strategic partnerships, this may increase our capital requirements, dilute our stockholders, cause us to incur debt or assume contingent liabilities, and subject us to other risks.

We may evaluate various acquisition opportunities and strategic partnerships, including licensing or acquiring complementary products, intellectual property rights, technologies or businesses. Any potential acquisition or strategic partnership may entail numerous risks, including:

- increased operating expenses and cash requirements;
- the assumption of additional indebtedness or contingent liabilities;
- the issuance of our equity securities;
- assimilation of operations, intellectual property and products of an acquired company, including difficulties associated with integrating new personnel;
- the diversion of our management's attention from our existing product programs and initiatives in pursuing such a strategic merger or acquisition;
- retention of key employees, the loss of key personnel and uncertainties in our ability to maintain key business relationships;
- risks and uncertainties associated with the other party to such a transaction, including the prospects of that party and their existing products or product candidates and marketing approvals; and
- our inability to generate revenue from acquired technology and/or products sufficient to meet our objectives in undertaking the acquisition or even to offset the associated acquisition and maintenance costs.

In addition, if we undertake acquisitions, we may issue dilutive securities, assume or incur debt obligations, incur large one-time expenses and acquire intangible assets that could result in significant future amortization expense. Moreover, we may not be able to locate suitable acquisition opportunities, and this inability could impair our ability to grow or obtain access to technology or products that may be important to the development of our business.

If we decide to establish collaborations, but are not able to establish those collaborations, we may have to alter our development and commercialization plans.

Our drug development programs and the potential commercialization of our product candidates will require substantial additional cash to fund expenses. We may seek to selectively form collaborations to expand our capabilities, potentially accelerate research and development activities and provide for commercialization activities by third parties.

We would face significant competition in seeking appropriate collaborators. Whether we reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. Those factors may include the design or results of clinical trials, the likelihood of approval by the FDA or comparable foreign regulatory authorities, the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing drugs, the existence of uncertainty with respect to our ownership of intellectual property and industry and market conditions generally. The potential collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with us for our product candidate.

Collaborations are complex and time-consuming to negotiate and document. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators. Even if we are successful in entering into a collaboration, the terms and conditions of that collaboration may restrict us from entering into future agreements on certain terms with potential collaborators.

If and when we seek to enter into collaborations, we may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of a product candidate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense.

Risks Related to this Offering and Ownership of Our Common Stock

We do not know whether an active, liquid and orderly trading market will develop for our common stock or what the market price of our common stock will be and as a result it may be difficult for you to sell your shares of our common stock.

Prior to this offering, no market for shares of our common stock existed and an active trading market for our shares may never develop or be sustained following this offering. We have determined the initial public offering price for our common stock 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. Furthermore, 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 market price of our stock may be volatile, and you could lose all or part of your investment.

The trading price of our common stock following this offering is likely to be highly volatile and subject to wide fluctuations in response to various factors, some of which we cannot control. In addition to the factors discussed in this “Risk Factors” section and elsewhere in this prospectus, these factors include:

- the timing and results of preclinical studies and clinical trials of our product candidates or those of our competitors;
- the success of competitive products or announcements by potential competitors of their product development efforts;
- regulatory actions with respect to our products or our competitors’ products;
- actual or anticipated changes in our growth rate relative to our competitors;
- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key personnel;

- announcements by us or our competitors of significant acquisitions, strategic collaborations, joint ventures, collaborations or capital commitments;
- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- market conditions in the pharmaceutical and biotechnology sector;
- changes in the structure of healthcare payment systems;
- 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;
- expiration of market stand-off or lock-up agreements; and
- general economic, industry and market conditions.

In addition, the stock market in general, and pharmaceutical and biotechnology 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, including those described in this “Risk Factors” section, could have a dramatic and adverse impact on the market price of our common stock.

If securities or industry analysts do not publish research or reports about our business, or if they issue an adverse or misleading opinion regarding our stock, our stock price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that industry or securities analysts publish about us or our business. We do not currently have and may never obtain research coverage by securities and industry analysts. If no or few securities or industry analysts commence coverage of us, the trading price for our stock would be negatively impacted. In the event we obtain securities or industry analyst coverage, if any of the analysts who cover us issue an adverse or misleading opinion regarding us, our business model, our intellectual property or our stock performance, or if our operating results fail to meet the expectations of analysts, our stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

Our operating results may fluctuate significantly, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations or our guidance.

Our quarterly and annual operating results may fluctuate significantly in the future, which makes it difficult for us to predict our future operating results. From time to time, we may enter into license or collaboration agreements or strategic partnerships with other companies that include development funding and significant upfront and milestone payments and/or royalties, which may become an important source of our revenue. These upfront and milestone payments may vary significantly from period to period and any such variance could cause a significant fluctuation in our operating results from one period to the next.

In addition, we measure compensation cost for stock-based awards made to employees at the grant date of the award, based on the fair value of the award as determined by our board of directors, and recognize the cost as an expense over the employee's requisite service period. As the variables that we use as a basis for valuing these awards change over time, including, after the closing of this offering, our underlying stock price and stock price volatility, the magnitude of the expense that we must recognize may vary significantly.

Furthermore, our operating results may fluctuate due to a variety of other factors, many of which are outside of our control and may be difficult to predict, including the following:

- the timing and cost of, and level of investment in, research and development activities relating to our current and any future product candidates, which will change from time to time;
- our ability to enroll patients in clinical trials and the timing of enrollment;
- the cost of manufacturing our current and any future product candidates, which may vary depending on FDA guidelines and requirements, the quantity of production and the terms of our agreements with manufacturers;
- expenditures that we will or may incur to acquire or develop additional product candidates and technologies;
- the timing and outcomes of clinical trials for AK002 and any of our future product candidates or competing product candidates;
- the need to conduct unanticipated clinical trials or trials that are larger or more complex than anticipated;
- competition from existing and potential future products that compete with AK002 and any of our future product candidates, and changes in the competitive landscape of our industry, including consolidation among our competitors or partners;
- any delays in regulatory review or approval of AK002 or any of our future product candidates;
- the level of demand for AK002 and any of our future product candidates, if approved, which may fluctuate significantly and be difficult to predict;
- the risk/benefit profile, cost and reimbursement policies with respect to our products candidates, if approved, and existing and potential future products that compete with AK002 and any of our future product candidates;
- our ability to commercialize AK002 and any of our future product candidates, if approved, inside and outside of the United States, either independently or working with third parties;
- our ability to establish and maintain collaborations, licensing or other arrangements;
- our ability to adequately support future growth;
- potential unforeseen business disruptions that increase our costs or expenses;
- future accounting pronouncements or changes in our accounting policies; and
- the changing and volatile global economic environment.

The cumulative effect of these factors could result in large fluctuations and unpredictability in our quarterly and annual operating results. As a result, comparing our operating results on a period-to-period basis may not be meaningful. Investors should not rely on our past results as an indication of our future performance. This variability and unpredictability could also result in our failing to meet the expectations of industry or financial analysts or investors for any period. If our revenue or operating results fall below the expectations of analysts or investors or below any forecasts we may

provide to the market, or if the forecasts we provide to the market are below the expectations of analysts or investors, the price of our common stock could decline substantially. Such a stock price decline could occur even when we have met any previously publicly stated guidance we may provide.

Our principal stockholders and management own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

Prior to this offering, our executive officers, directors, holders of 5% or more of our capital stock and their respective affiliates beneficially owned approximately 85.4% of our voting stock and, upon the closing of this offering, that same group will beneficially own approximately % of our outstanding voting stock (based on the number of shares of common stock outstanding as of December 31, 2017 assuming no exercise of the underwriters' option to purchase additional shares, no exercise of outstanding options or warrants and no purchases of shares in this offering by any of this group), in each case assuming the conversion of all outstanding shares of our convertible preferred stock into shares of our common stock immediately prior to the closing of this offering. After this offering, this group of stockholders will have the ability to control us through this ownership position even if they do not purchase any additional shares in this offering. These stockholders may be able to determine all matters requiring stockholder approval. For example, these stockholders may be able to control elections 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 as one of our stockholders. 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, and might affect the prevailing market price for our common stock.

You will incur immediate and substantial dilution as a result of this offering.

If you purchase common stock in this offering, you will incur immediate and substantial dilution of $ per share, representing the difference between the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering 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, and our pro forma net tangible book value per share after giving effect to this offering and the automatic conversion of all outstanding shares of our convertible preferred stock upon the closing of this offering. As of December 31, 2017, there were 6,104,949 shares subject to outstanding options with a weighted-average exercise price of $0.53 per share. To the extent that these outstanding options are ultimately exercised or the underwriters exercise their option to purchase additional shares, you will incur further dilution. See the section titled "Dilution" for a further description of the dilution you will experience immediately after this offering.

Sales of a substantial number of shares of our common stock in the public market could cause our stock price to fall.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. After this offering, we will have outstanding shares of common stock based on the number of shares outstanding as of December 31, 2017, assuming: (i) no exercise of the underwriters' option to purchase additional shares and (ii) the conversion of all outstanding shares of our convertible preferred stock into shares of common stock immediately prior to the closing of this offering. This includes the shares that we sell in this offering, which may be resold in the public market immediately without restriction, unless purchased by our affiliates. Of the remaining shares, shares of our common stock are currently

restricted as a result of securities laws or lock-up agreements but will be able to be sold after this offering as described in the "Shares Eligible for Future Sale" section of this prospectus. Moreover, after this offering, holders of an aggregate of shares of our common stock will have rights, subject to certain 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. We also intend to register all shares of common stock that we may issue under our equity incentive 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.

Our executive officers, directors and the holders of substantially all of our capital stock and securities convertible into or exchangeable for our capital stock have entered into market stand-off agreements with us and lock-up agreements with the underwriters under which they have agreed, subject to specific exceptions described in the section titled "Underwriting", not to sell, directly or indirectly, any shares of common stock without the permission of Goldman Sachs & Co. LLC and Jefferies LLC for a period of 180 days following the date of this prospectus. We refer to such period as the lock-up period. When the lock-up period expires, we and our securityholders subject to a lock-up agreement or market stand-off agreement will be able to sell our shares in the public market. In addition, Goldman Sachs & Co. LLC and Jefferies LLC may, in their sole discretion, release all or some portion of the shares subject to lock-up agreements at any time and for any reason. See "Shares Eligible for Future Sale" for more information. Sales of a substantial number of such shares upon expiration of the lock-up and market stand-off agreements, the perception that such sales may occur, or early release of these agreements, could cause our market price to fall or make it more difficult for you to sell your common stock at a time and price that you deem appropriate.

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

We may seek additional capital through a variety of means, including through public or private equity, debt financings or other sources, including up-front payments and milestone payments from strategic collaborations. To the extent that we raise additional capital through the sale of equity or convertible debt or equity securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences that adversely affect your rights as a stockholder. Such financing may result in dilution to stockholders, imposition of debt covenants, increased fixed payment obligations or other restrictions that may affect our business. If we raise additional funds through up-front payments or milestone payments pursuant to strategic collaborations with third parties, we may have to relinquish valuable rights to our product candidates, or grant licenses on terms that are not favorable to us. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans.

We are an emerging growth company, and we cannot be certain if the reduced reporting requirements applicable to emerging growth companies will make our common stock less attractive to investors.

We are an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012 ("JOBS Act"). For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended ("Sarbanes-Oxley Act"), reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements and exemptions from the requirements of

holding nonbinding advisory stockholder votes on executive compensation and stockholder approval of any golden parachute payments not previously approved. We cannot predict if investors will find our common stock less attractive because we may rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

We will remain an emerging growth company until the earlier of (i) the last day of the fiscal year (a) following the fifth anniversary of the closing of our initial public offering, (b) in which we have total annual gross revenue of at least $1.07 billion or (c) in which we are deemed to be a large accelerated filer, which requires the market value of our common stock that is held by non-affiliates to exceed $700 million as of the prior June 30th, and (ii) the date on which we have issued more than $1 billion in non-convertible debt during the prior three-year period.

Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards and, therefore, will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies. As a result, changes in rules of U.S. generally accepted accounting principles or their interpretation, the adoption of new guidance or the application of existing guidance to changes in our business could significantly affect our financial position and results of operations.

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

As a public company, we will incur significant legal, accounting and other expenses that we did not incur as a private company, and these expenses may increase even more after we are no longer an “emerging growth company.” We will be subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Protection Act, as well as rules adopted, and to be adopted, by the SEC and the . Our management and other personnel will need to devote a substantial amount of time to these compliance initiatives. Moreover, we expect these rules and regulations to substantially increase our legal and financial compliance costs and to make some activities more time-consuming and costly, which will increase our operating expenses. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to incur substantial costs to maintain sufficient coverage. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers.

In addition, as a public company we will be required to incur additional costs and obligations in order to comply with SEC rules that implement Section 404 of the Sarbanes-Oxley Act. Under these rules, beginning with our second annual report on Form 10-K after we become a public company, we will be required to make a formal assessment of the effectiveness of our internal control over financial reporting, and once we cease to be an emerging growth company, we will be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To achieve compliance with Section 404 within the prescribed period, we will be engaging in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, potentially engage outside consultants and adopt a detailed work plan to assess and document the adequacy of our internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are designed and operating effectively, and implement a continuous reporting and improvement process for internal control over financial reporting.

The rules governing the standards that must be met for management to assess our internal control over financial reporting are complex and require significant documentation, testing and possible remediation to meet the detailed standards under the rules. During the course of its testing, our management may identify material weaknesses or deficiencies which may not be remedied in time to meet the deadline imposed by the Sarbanes-Oxley Act. These reporting and other obligations place significant demands on our management and administrative and operational resources, including accounting resources.

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

Upon the closing of this offering, we will become subject to the periodic reporting requirements of the Exchange Act. We designed our disclosure controls and procedures to reasonably assure that information we must disclose in reports we file or submit under the Exchange Act is accumulated and communicated to management, and 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 or internal 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 include the facts that judgments in decision-making 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.

We will have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

Our management 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 will not have the opportunity, as part of your investment decision, to assess whether we are using the proceeds appropriately. Our management might not apply the net proceeds in ways that ultimately increase the value of your investment. 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, which could cause our stock price to decline.

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

The market price of our common stock may be volatile and, 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.

We do not intend to pay dividends on our common stock so any returns will be limited to the value of our stock.

We have never declared or paid any cash dividends on our common stock. We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. Any return to stockholders will therefore be limited to any appreciation in the value of their stock.

Provisions in our restated certificate of incorporation and restated bylaws and Delaware law might discourage, delay or prevent a change in control of our company or changes in our management and, therefore, depress the market price of our common stock.

Our restated certificate of incorporation and restated bylaws, as we expect they will be in effect upon closing of the offering, will contain provisions that could depress the market price of our common stock by acting to discourage, delay or prevent a change in control of our company or changes in our management that the stockholders of our company may deem advantageous. These provisions, among other things:

- establish a classified board of directors so that not all members of our board are elected at one time;
- permit only the board of directors to establish the number of directors and fill vacancies on the board;
- provide that directors may only be removed "for cause" and only with the approval of two-thirds of our stockholders;
- authorize the issuance of "blank check" preferred stock that our board could use to implement a stockholder rights plan (also known as a "poison pill");
- eliminate the ability of our stockholders to call special meetings of stockholders;
- prohibit stockholder action by written consent, which requires all stockholder actions to be taken at a meeting of our stockholders;
- prohibit cumulative voting;
- authorize our board of directors to amend the bylaws;
- establish advance notice requirements for nominations for election to our board or for proposing matters that can be acted upon by stockholders at annual stockholder meetings; and
- require a super-majority vote of stockholders to amend some provisions described above.

In addition, Section 203 of the General Corporation Law of the State of Delaware ("DGCL"), prohibits a publicly-held Delaware corporation from engaging in a business combination with an interested stockholder, generally a person which together with its affiliates owns, or within the last three years has owned, 15% of our voting stock, for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner.

Any provision of our amended and restated certificate of incorporation, amended and restated bylaws or Delaware law that has the effect of delaying or preventing a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our capital stock and could also affect the price that some investors are willing to pay for our common stock.

Our amended and restated certificate of incorporation that will become effective upon the closing of this offering provides that the Court of Chancery of the State of Delaware and the federal district courts of the United States of America will be the exclusive forums 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 amended and restated certificate of incorporation that will become effective upon the closing of this offering provides that the Court of Chancery of the State of Delaware is the exclusive forum for:

- any derivative action or proceeding brought on our behalf;

- any action asserting a claim of breach of fiduciary duty;
- any action asserting a claim against us arising under the DGCL, our amended and restated certificate of incorporation or our amended and restated bylaws; and
- any action asserting a claim against us that is governed by the internal-affairs doctrine.

Our amended and restated certificate of incorporation further provides that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act.

These exclusive-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 lawsuits against us and our directors, officers and other employees. If a court were to find either exclusive-forum provision in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving the dispute in other jurisdictions, which could seriously harm our business.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements. All statements other than statements of historical facts contained in this prospectus, including statements regarding our future results of operations and financial position, business strategy, product candidates, planned preclinical studies and clinical trials, results of clinical trials, research and development costs, regulatory approvals, timing and likelihood of success, as well as plans and objectives of management for future operations, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that are in some cases beyond our control and 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.

In some cases, you can identify forward-looking statements by terms such as “may,” “will,” “should,” “would,” “expect,” “plan,” “anticipate,” “could,” “intend,” “target,” “project,” “contemplate,” “believe,” “estimate,” “predict,” “potential” or “continue” or the negative of these terms or other similar expressions. Forward-looking statements contained in this prospectus include, but are not limited to, statements about:

- the ability of our clinical trials to demonstrate safety and efficacy of our product candidates, and other positive results;
- the timing and focus of our future clinical trials, and the reporting of data from those trials;
- our plans relating to commercializing AK002, if approved, including the geographic areas of focus and sales strategy;
- the size of the market opportunity for AK002 in each of the diseases we are targeting;
- the number of diseases represented in the patient population enrolled in our clinical trials, and our ability to evaluate response to treatment of AK002 in diseases other than the primary indication in our clinical trials;
- our estimates of the number of patients in the United States who suffer from the diseases we are targeting and the number of patients that will enroll in our clinical trials;
- the beneficial characteristics, safety, efficacy and therapeutic effects of AK002;
- the timing or likelihood of regulatory filings and approvals, including our expectation to seek special designations, such as orphan drug designation, for AK002 or our other product candidates for various diseases;
- our ability to obtain and maintain regulatory approval of AK002 or our other product candidates;
- our plans relating to the further development of AK002 and our other product candidates;
- existing regulations and regulatory developments in the United States and other jurisdictions;
- our plans and ability to obtain or protect intellectual property rights, including extensions of existing patent terms where available;
- our continued reliance on third parties to conduct additional clinical trials of AK002 and our other product candidates, and for the manufacture of our product candidates for preclinical studies and clinical trials;
- the need to hire additional personnel and our ability to attract and retain such personnel;
- the accuracy of our estimates regarding expenses, future revenue, capital requirements and needs for additional financing;

- our financial performance;
- the sufficiency of our existing cash and cash equivalents to fund our future operating expenses and capital expenditure requirements;
- our expectations regarding the period during which we will qualify as an emerging growth company under the JOBS Act; and
- our anticipated use of the proceeds from this offering.

We have based these forward-looking statements largely on our current expectations and projections about our business, the industry in which we operate and financial trends that we believe may affect our business, financial condition, results of operations and prospects, and these forward-looking statements are not guarantees of future performance or development. These forward-looking statements speak only as of the date of this prospectus and are subject to a number of risks, uncertainties and assumptions described in the section titled “Risk Factors” and elsewhere in this prospectus. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein until after we distribute this prospectus, whether as a result of any new information, future events or otherwise.

In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and you are cautioned not to unduly rely upon these statements.

MARKET, INDUSTRY AND OTHER DATA

This prospectus contains estimates, projections and other information concerning our industry, our business and the markets for our product candidates, including data regarding the estimated size of such markets and the incidence of certain medical conditions. We obtained the industry, market and similar data set forth in this prospectus from our internal estimates and research and from academic and industry research, publications, surveys and studies conducted by third parties, including governmental agencies. 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. While we believe that the data we use from third parties are reliable, we have not separately verified these data. Further, while we believe our internal research is reliable, such research has not been verified by any third party. You are cautioned not to give undue weight to any such information, projections and estimates.

USE OF PROCEEDS

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

Each $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 approximately $ 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 estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, each increase (decrease) of 1.0 million shares in the number of shares offered by us would increase (decrease) the net proceeds to us from this offering by approximately $ million, assuming that the assumed initial public offering price remains the same, and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. We do not expect that a change in the initial public offering price or the number of shares by these amounts would have a material effect on our uses of the proceeds from this offering, although it may accelerate the time at which we will need to seek additional capital.

The principal purposes of this offering are to obtain additional capital to support our operations, establish a public market for our common stock and facilitate our future access to the public capital markets. We currently anticipate that we will use the net proceeds from this offering as follows:

- approximately $ million for the development of our lead compound, AK002; and
- the remainder for other research and development activities, working capital and general corporate purposes.

We believe opportunities may exist from time to time to expand our current business through license or acquisitions of, or investments in, complementary businesses, products or technologies. While we have no current agreements, commitments or understandings for any specific licenses, acquisitions or investments at this time, we may use a portion of the net proceeds for these purposes.

Pending their uses, we plan to invest the net proceeds of this offering in short-term, interest-bearing, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

DIVIDEND POLICY

We have not declared or paid any cash dividends on our capital stock since our inception. We intend to retain future earnings, if any, to finance the operation and expansion of our business and do not anticipate paying any cash dividends in the foreseeable future. Payment of future cash dividends, if any, will be at the discretion of our board of directors after taking into account various factors, including our financial condition, operating results, current and anticipated cash needs, the requirements and contractual restrictions of then-existing debt instruments and other factors that our board of directors deems relevant.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and capitalization as of December 31, 2017, as follows:

- on an actual basis;
- on a pro forma basis to reflect the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 38,714,587 shares of common stock upon the closing of this offering; and
- on a pro forma as adjusted basis to further reflect our issuance and sale of shares of common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the estimated offering 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.

You should read this information in conjunction with our financial statements and the related notes appearing elsewhere in this prospectus, as well as the sections of this prospectus titled “Selected Financial Data” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

	As of December 31, 2017		
	Actual	Pro Forma	Pro Forma As Adjusted(1)
	(in thousands, except per share amounts)		
Cash and cash equivalents	$ 85,207	$ 85,207	$
Series A convertible preferred stock, $0.001 par value per share; 26,083 shares authorized, 26,083 shares issued and outstanding, actual; no shares authorized, issued or outstanding pro forma and pro forma as adjusted	$ 42,996	$ —	$ —
Series B convertible preferred stock, $0.001 par value per share; 12,632 shares authorized, 12,632 shares issued and outstanding, actual; no shares authorized, issued or outstanding pro forma and pro forma as adjusted	99,973	—	—
Stockholders’ equity (deficit):			
Common stock, $0.001 par value per share; 55,000 shares authorized, 2,643 shares issued and outstanding, actual; shares authorized, 41,358 shares issued and outstanding, pro forma (unaudited); shares authorized, shares issued and outstanding, pro forma as adjusted (unaudited)	3	41	
Additional paid-in capital	1,803	144,734	
Accumulated deficit	(60,574)	(60,574)	(60,574)
Total stockholders’ equity (deficit)	(58,768)	84,201	
Total capitalization	$ 84,201	$ 84,201	$

(1) Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, would increase (decrease) our pro forma as adjusted cash, additional paid-in capital, total stockholders’ equity (deficit) and total capitalization by approximately $ million, assuming that the number of shares of common stock 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 and estimated offering expenses payable by us.

Each increase (decrease) of 1.0 million shares in the number of shares of common stock offered by us would increase (decrease) our pro forma as adjusted cash, additional paid-in capital, total stockholders' equity (deficit) and total capitalization by approximately $ million, assuming the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual public offering price and other terms of this offering determined at pricing.

The number of shares of common stock that will be outstanding after this offering is based on 41,357,383 shares of common stock (including convertible preferred stock on an as-converted basis) outstanding as of December 31, 2017, and excludes the following:

- 6,104,949 shares of common stock issuable upon exercise of options to purchase shares of our common stock outstanding as of December 31, 2017, at a weighted-average exercise price of $0.53 per share;
- 1,675,727 shares of common stock issuable upon exercise of options to purchase shares of our common stock that we granted after December 31, 2017, at a weighted-average exercise price of $3.21 per share;
- 59,522 shares of common stock issuable upon exercise of a warrant to purchase shares of common stock outstanding as of December 31, 2017, at a weighted-average exercise price of $0.49 per share;
- shares of common stock reserved for future issuance under our stock-based compensation plans, consisting of:
  - 1,256,446 shares of common stock reserved for future issuance under our 2012 Equity Incentive Plan, as amended ("2012 Plan"), which shares will be included in the shares to be reserved under our 2018 Equity Incentive Plan ("2018 Plan"); and
  - shares of common stock reserved for future issuance under our 2018 Plan, which will become effective in connection with this offering, and any additional shares that become available under our 2018 Plan pursuant to provisions thereof that automatically increase the share reserve under the plan each year, as more fully described in the section titled "Executive Compensation—Employee Benefit and Stock Plans."

DILUTION

If you invest in our common stock in this offering, your ownership interest will be diluted immediately 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 immediately after this offering.

Our historical net tangible book value (deficit) as of December 31, 2017 was $(58.8) million, or $(22.24) per share of our common stock. Our historical net tangible book value (deficit) is the amount of our total tangible assets less our total liabilities and convertible preferred stock, which is not included within our stockholders' (deficit) equity. Historical net tangible book value per share represents historical net tangible book value (deficit) divided by the number of shares of our common stock outstanding as of December 31, 2017.

Our pro forma net tangible book value (deficit) as of December 31, 2017 was $84.2 million, or $2.04 per share of our common stock. Pro forma net tangible book value (deficit) represents the amount of our total tangible assets less our total liabilities, after giving effect to the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 38,714,587 shares of common stock upon the completion of this offering. Pro forma net tangible book value per share represents pro forma net tangible book value divided by the total number of shares outstanding as of December 31, 2017, after giving effect to the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 38,714,587 shares of our common stock upon the completion of this offering.

After giving further effect to our sale of shares of common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of December 31, 2017 would have been approximately $ million, or approximately $ per share. This represents an immediate increase in pro forma as adjusted net tangible book value per share of $ to our existing stockholders and an immediate dilution in pro forma as adjusted net tangible book value per share of approximately $ to new investors purchasing common stock in this offering. Dilution per share to new investors purchasing common stock in this offering 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 December 31, 2017	$(22.24)	
Pro forma increase in net tangible book value (deficit) per share as of December 31, 2017	$ 24.28	
Pro forma net tangible book value (deficit) per share as of December 31, 2017	$ 2.04	
Increase in pro forma as adjusted net tangible book value per share attributable to new investors purchasing shares in this offering	$	
Pro forma as adjusted net tangible book value per share after this offering		$
Dilution per share to new investors purchasing shares in this offering		$

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering 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 to new investors purchasing common stock in this offering by $ per share, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase of 1.0 million shares in the number of shares offered by us would increase the pro forma as adjusted net tangible book value per share after this offering by $ and decrease the dilution per share to new investors participating in this offering by $, assuming no change in the assumed initial public offering price and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. A decrease of 1.0 million shares in the number of shares offered by us would decrease the pro forma as adjusted net tangible book value per share after this offering by $ and increase the dilution per share to new investors participating in this offering by $, assuming no change in the assumed initial public offering price and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

If the underwriters exercise their option to purchase additional shares of common stock in this offering in full at the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover of this prospectus and assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, the pro forma as adjusted net tangible book value per share after this offering would be $ per share, and the dilution in pro forma as adjusted net tangible book value per share to new investors purchasing common stock in this offering would be $ per share.

The following table summarizes, on a pro forma as adjusted basis, as of December 31, 2017, the number of shares of common stock purchased from us on an as converted to common stock basis, the total consideration paid, or to be paid and the weighted-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 estimated offering 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.

	Shares Purchased		Total Consideration		Weighted Average Price Per Share
	Number	Percent	Amount	Percent	
Existing stockholders before this offering		%	$	%	$
Investors participating in this offering					
Total		100%	$	100%	

The table above assumes no exercise of the underwriters' option to purchase additional shares in this offering. If the underwriters' option to purchase additional shares is exercised in full, the number of shares of our common stock held by existing stockholders would be reduced to % of the total number of shares of our common stock outstanding after this offering, and the number of shares of common stock held by new investors participating in the offering would be increased to % of the total number of shares outstanding after this offering.

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, would increase (decrease) the total consideration paid by new investors by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same. An increase (decrease) of 1.0 million shares in the number of shares offered by us

would increase (decrease) the total consideration paid by new investors by $ million, assuming no change in the assumed initial public offering price.

The number of shares of common stock that will be outstanding after this offering is based on 41,357,383 shares of common stock (including convertible preferred stock on an as-converted basis) outstanding as of December 31, 2017, and excludes the following:

- 6,104,949 shares of common stock issuable upon exercise of options to purchase shares of our common stock outstanding as of December 31, 2017, at a weighted-average exercise price of $0.53 per share;
- 1,675,727 shares of common stock issuable upon exercise of options to purchase shares of our common stock that we granted after December 31, 2017, at a weighted-average exercise price of $3.21 per share;
- 59,522 shares of common stock issuable upon exercise of a warrant to purchase shares of common stock outstanding as of December 31, 2017, at a weighted-average exercise price of $0.49 per share;
- shares of common stock reserved for future issuance under our stock-based compensation plans, consisting of:
  - 1,256,446 shares of common stock reserved for future issuance under our 2012 Equity Incentive Plan, as amended ("2012 Plan"), which shares will be included in the shares to be reserved under our 2018 Equity Incentive Plan ("2018 Plan"); and
  - shares of common stock reserved for future issuance under our 2018 Plan, which will become effective in connection with this offering, and any additional shares that become available under our 2018 Plan pursuant to provisions thereof that automatically increase the share reserve under the plan each year, as more fully described in the section titled "Executive Compensation—Employee Benefit and Stock Plans."

To the extent that any outstanding options are exercised or new options are issued under the equity benefit plans, or we issue additional shares of common stock or other securities convertible into or exercisable or exchangeable for shares of our capital stock in the future, there will be further dilution to investors participating in this offering.

SELECTED FINANCIAL DATA

The following tables summarize our selected financial data for the periods and as of the dates indicated. We have derived our selected statements of operations and comprehensive loss data for the years ended December 31, 2016 and 2017, and the balance sheets as of December 31, 2016 and 2017, from our audited financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results that may be expected in the future. You should read the financial and other data below in conjunction with the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and related notes included elsewhere in this prospectus.

	Year Ended December 31,	
	2016	2017
	(in thousands, except per share data)	
Statements of Operations Data:		
Operating expenses:		
Research and development	$ 14,672	$ 18,506
General and administrative	2,388	3,748
Total operating expenses	17,060	22,254
Loss from operations	(17,060)	(22,254)
Interest expense, net	(51)	(1,302)
Other income (expense), net	11	(287)
Loss before benefit from income taxes	(17,100)	(23,843)
Provision for (benefit from) income taxes	—	(291)
Net loss and comprehensive loss	$ (17,100)	$ (23,552)
Net loss per share:(1)		
Basic and diluted	$ (10.43)	$ (11.63)
Weighted-average shares of common stock outstanding:(1)		
Basic and diluted	1,640	2,025
Pro forma net loss per share:(1)		
Basic and diluted (unaudited)		$ (0.81)
Pro forma weighted-average shares of common stock outstanding:(1)		
Basic and diluted (unaudited)		29,216

(1) See our statements of operations and comprehensive loss and Note 2 to our financial statements for further details on the calculation of net loss per share, basic and diluted, attributable to common stockholders and the weighted-average number of shares used in the computation of the per share amounts and unaudited pro forma information.

	As of December 31,	
	2016	2017
	(in thousands)	
Balance Sheets Data:		
Cash and cash equivalents	$ 13,416	$ 85,207
Working capital (1)	11,031	83,452
Total assets	14,176	87,029
Total liabilities	7,616	2,828
Convertible preferred stock	42,996	142,969
Accumulated deficit	(37,022)	(60,574)
Total stockholders' deficit	(36,436)	(58,768)

(1) We define working capital as current assets less current liabilities. See our financial statements included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

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

You should read the following discussion and analysis of our financial condition and results of operations together with our audited and unaudited financial statements and the related notes and other financial information included elsewhere in this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business, include forward-looking statements that involve risks and uncertainties. You should review "Risk Factors" for a discussion of important factors that could cause our actual results to differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are a clinical stage biotechnology company developing AK002, our wholly owned monoclonal antibody that has demonstrated pharmacodynamic activity and promising clinical efficacy in Phase 1 trials. AK002 selectively targets both eosinophils and mast cells, which are types of white blood cells that are widely distributed in the body and play a central role in the inflammatory response. Inappropriately activated eosinophils and mast cells have been identified as key drivers in a number of severe diseases affecting the gastrointestinal tract, eyes, skin, lungs and other organs. As such, AK002 has the potential to treat a large number of severe diseases. We are initially developing AK002 for the treatment of eosinophilic gastritis ("EG"), indolent systemic mastocytosis ("ISM"), chronic urticaria ("CU") and severe allergic conjunctivitis ("SAC"), and plan to explore additional indications in the future.

Despite the knowledge that eosinophils and mast cells drive many pathological conditions, there are no approved therapies that selectively target eosinophils and mast cells. Current treatments for the diseases we are pursuing are non-selective and often come with serious side effects that make them unsuitable for long term use. AK002 binds to Siglec-8, an inhibitory receptor found on eosinophils and mast cells, which represents a novel way to selectively deplete or inhibit these important immune cells and thereby resolve inflammation. We believe AK002 is the only Siglec-8 targeting antibody currently in clinical development and has the potential to be safer and more effective than current treatments.

Since our inception in 2012, we have devoted substantially all of our resources and efforts towards the research and development of our product candidates. We initially began developing two product candidates, AK001 and AK002, both of which are monoclonal antibodies targeting Siglec-8. These compounds entered clinical trials in 2015 and 2016, respectively. Due to the greater activity of AK002, we decided to focus our development efforts on AK002 and discontinued the development of AK001 in 2017. We have no current plans to continue development of AK001 at this time but may choose to do so in the future. In addition to activities conducted internally at our facilities, we have utilized significant financial resources to engage contractors, consultants and other third parties to conduct various preclinical and clinical development activities on our behalf.

To date, we have not had any products approved for sale and have not generated any revenue nor been profitable. Further, we do not expect to generate revenue from product sales until such time, if ever, that we are able to successfully complete the development and obtain marketing approval for one of our product candidates. We will continue to require additional capital to develop our product candidates and fund operations for the foreseeable future. We have incurred significant operating losses to date and expect to incur significant operating losses for the foreseeable future. Our net loss was $23.6 million for 2017. As of December 31, 2017, we had an accumulated deficit of $60.6 million.

Our operations have been financed primarily through the private placements of convertible debt instruments and convertible preferred stock. These private placements provided gross proceeds of $146.9 million. We also had a debt facility with Silicon Valley Bank ("SVB") for an aggregate of $5.0 million, which was fully repaid and terminated during 2017. As of December 31, 2017, we had cash and cash equivalents of $85.2 million, which we believe will be sufficient to fund our planned operations for at least the next twelve months.

Components of Operating Results

Revenue

We have not generated any revenue from product sales or otherwise, and do not expect to generate any revenue for at least the next several years.

Operating Expenses

We classify operating expenses into two categories: (i) research and development and (ii) general and administrative.

Research and Development Expenses

Research and development expenses represent the following costs incurred by us for the discovery, development and manufacturing of our product candidates:

- consultant and personnel-related costs including salaries, benefits, travel and stock-based compensation expense;
- costs incurred under service agreements with contract research organizations ("CROs") that conduct nonclinical and clinical research activities on our behalf;
- costs incurred under service agreements with contract development and manufacturing organizations ("CDMOs") for the manufacture and fill finish of our preclinical and clinical materials;
- costs related to in-house research and development activities conducted at our facilities including laboratory supplies, non-capital laboratory equipment and depreciation of capital laboratory equipment and leasehold improvements to laboratories;
- costs incurred under exclusive and non-exclusive license agreements with third parties; and
- allocated facility and other costs including the rent and maintenance of our facilities, insurance premiums, depreciation of shared-use leasehold improvements and general office supplies.

We expense research and development costs as incurred. We recognize costs for certain development activities, such as clinical trials, based on an evaluation of the progress to completion of specific tasks using data such as clinical site activations, patient enrollment or information provided to us by our vendors and our clinical investigative sites, along with analysis by our in-house clinical operations personnel. Advance payments for goods or services to be received in the future for use in research and development activities are deferred and capitalized as prepaid expenses, even when there is no alternative future use for the research and development. The capitalized amounts are expensed as the related goods are delivered or the services are performed.

The successful development of our product candidates is highly uncertain. Accordingly, it is difficult to estimate the nature, timing and extent of costs necessary to complete the remainder of the development of our product candidates. We are also unable to predict when, if ever, we will be able to

generate revenue from our product candidates. This is due to the numerous risks and uncertainties associated with developing drugs, including the uncertainty surrounding:

- demonstrating sufficient safety and tolerability profiles of product candidates;
- successful enrollment and completion of clinical trials;
- requisite clearance and approvals from applicable regulatory authorities;
- establishing and maintaining commercial manufacturing capabilities with CDMOs;
- obtaining and maintaining protection of intellectual property; and
- commercializing product candidates, if and when approved, alone or in collaboration with third parties.

A change pertaining to any of these variables would significantly impact the timing and extent of costs incurred with respect to the development and commercialization of our product candidates.

External costs incurred from third party CROs and CDMOs have comprised a significant portion of our research and development expenses since inception. We track external CRO and CDMO costs on a program-by-program basis following the advancement of a product candidate into clinical development. To date, we have advanced two product candidates, AK001 and AK002, into clinical development, although we discontinued the development of AK001 in 2017. Consulting and personnel-related costs, laboratory supplies and non-capital equipment utilized in the conduct of in-house research, in-licensing fees and general overhead, are not tracked on a program-by-program basis, nor are they allocated, as they commonly benefit projects in our pipeline or span multiple programs.

The following table summarizes our research and development expenses for the periods indicated (in thousands):

	Year Ended December 31,	
	2016	2017
AK002 contract research and development	$ 2,989	$ 5,133
AK001 contract research and development	5,460	3,820
Consulting and personnel-related costs	3,452	6,033
Other unallocated research and development costs	2,771	3,520
Total	$ 14,672	$ 18,506

General and Administrative Expenses

General and administrative expenses consist of fees paid to consultants, salaries, benefits and other personnel-related costs, including stock-based compensation, for our personnel in executive, finance, accounting and other administrative functions, legal costs, fees paid for accounting and tax services and facility costs not otherwise included in research and development expenses. Legal costs include general corporate and patent legal fees and related costs.

We anticipate that our general and administrative expenses will increase in the future to support our continued research and development activities including costs related to personnel, outside consultants, attorneys and accountants, among others. Additionally, we expect to incur incremental costs associated with operating as a public company, including expenses related to maintaining compliance with the rules and regulations of the Securities and Exchange Commission (“SEC”), and those of any national securities exchange on which our securities are traded, additional insurance premiums, investor relations activities and other ancillary administrative and professional services.

Interest Expense, Net

Interest expense, net primarily consists of stated interest on outstanding principal amounts drawn under our historical debt facility with SVB, amortization of debt discounts and beneficial conversion feature associated with convertible notes payable to related parties and the amortization and accretion of debt discounts and deferred issuance costs associated with amounts drawn under our historical debt facility with SVB. Also included within interest expense, net is interest earned on cash and cash equivalents included on the associated balance sheets.

Other Income (Expense), Net

Other income (expense), net primarily consists of charges related to the extinguishment of our historical debt facility with SVB, as well as gains and losses related to fluctuations in foreign currencies.

In-Licensing Agreements

We have entered into a number of exclusive and nonexclusive, royalty bearing license agreements with third-parties for certain intellectual property. Under the terms of the license agreements described below, we are obligated to pay milestone payments upon the achievement of specified clinical, regulatory and commercial milestones. Actual amounts due under the license agreements vary depending on factors including, but not limited to, the number of product candidates we develop and our ability to successfully develop and commercialize our product candidates covered under the respective agreements. In addition to milestone payments, we are also subject to future royalty payments based on sales of our product candidates covered under the agreements, as well as certain minimum annual royalty and commercial reservation fees. Because the achievement of milestones and the timing and extent of future royalties is not fixed and determinable, these contingent amounts have not been included on our balance sheet or as part of Contractual Obligations and Commitments discussion below.

Exclusive License Agreement with The Johns Hopkins University

In December 2013, we entered into a license agreement with The Johns Hopkins University, (“JHU”) for a worldwide exclusive license to develop, use, manufacture and commercialize covered product candidates including AK001 and AK002, which was amended in September 30, 2016. Under the terms of the agreement, we have made upfront and milestone payments of $0.3 million as of December 31, 2017 and we may be required to make aggregate additional milestone payments of up to $4.0 million. We also issued to JHU 111,111 shares of common stock. In addition to milestone payments, we are also subject to market rate royalties to JHU based on future net sales of each licensed therapeutic product candidate by us and our affiliates and sublicensees, with up to a low six digit dollar minimum annual royalty payment.

Non-exclusive License Agreement with BioWa Inc. and Lonza Sales AG

In October 2013, we entered into a tripartite agreement with BioWa Inc. (“BioWa”), and Lonza Sales AG (“Lonza”), for the non-exclusive worldwide license to develop and commercialize product candidates including AK002 that are manufactured using a technology jointly developed and owned by BioWa and Lonza. Under the terms of the agreement, we have made milestone payments of $0.1 million as of December 31, 2017 and we may be required to make aggregate additional milestone payments of up to $41.3 million. In addition to milestone payments, we are also subject to minimum annual commercial license fees of $40,000 per year to BioWa until such time as BioWa receives royalty payments, as well as low single-digit royalties to BioWa and to Lonza. Royalties are based on future net sales by us and our affiliates and sublicensees and vary dependent on Lonza’s participation as sole manufacturer for commercial production.

Critical Accounting Policies and Use of Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with generally accepted accounting principles in the United States ("U.S. GAAP"). The preparation of our financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported expenses incurred during the reporting periods. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

We believe that the accounting policies discussed below are critical to understanding our historical and future performance, as these policies relate to the more significant areas involving management's judgments and estimates.

Research and Development Expenses

As part of the process of preparing our financial statements, we estimate our accrued research and development expenses at each balance sheet date. This process involves reviewing purchase orders and open contracts, communicating with our personnel to identify services that have been performed on our behalf and estimating the level of service performed and the associated costs incurred for the services when we have not yet been invoiced or otherwise notified of the actual cost. The majority of our service providers invoice us monthly in arrears for services performed or when contractual milestones are met; however, some require advance payments. We make estimates of our accrued expenses as of each balance sheet date in our financial statements based on facts and circumstances known to us at that time. We periodically confirm the accuracy of our estimates with the service providers and make adjustments as necessary. The significant estimates in our accrued research and development expenses include the costs incurred for services performed by CROs and CDMOs in connection with research and development activities for which we have not yet been invoiced.

We base our expenses related to research and development activities on our estimates of the services received and efforts expended pursuant to quotes and contracts with vendors that conduct research and development on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the research and development expense. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from our estimate, we adjust the accrual or prepaid accordingly. Non-refundable advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received rather than when the payment is made.

Although we do not expect our estimates to be materially different from amounts incurred, our understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in us reporting amounts that are too high or too low in any period. To date, there have been no material differences between our estimates of such expenses and the amounts incurred.

Stock-Based Compensation

We account for stock-based compensation expense resulting from stock-based awards granted to employees and directors in accordance with ASC 718, *Compensation—Stock Compensation*, ("ASC 718"). Per ASC 718, we measure the fair value of stock-based awards on the date of grant and recognize the associated compensation expense, net of impact from estimated forfeitures, over the requisite service period on a straight-line basis. The vesting period of the stock-based award has historically served as the requisite service period for the respective grants to our employees and directors. At each subsequent reporting date, we are required to evaluate whether the achievement of any associated vesting conditions is probable and whether or not any such events have occurred that would have resulted in the acceleration of vesting.

Determining the amount of stock-based compensation expense to be recorded requires us to develop estimates of the fair value of stock options as of the date of grant. We estimate the fair value of each stock-based award using the Black-Scholes option-pricing model. The Black-Scholes option-pricing model uses highly subjective inputs such as the fair value of our common stock, as well as other assumptions including the expected volatility of our common stock, the expected term of the respective stock-based award, the risk-free interest rate for a period that approximates the expected term of the stock-based award being valued and the expected dividend yield on our common stock over the expected term.

Expected volatility. Due to the lack of a public market for our common stock and a lack of company-specific historical and implied volatility data, we have based our computation of expected volatility on the historical volatility of a representative group of public life science companies with similar characteristics to us, including company age and stage of product development. The historical volatility data is calculated based on a period of time commensurate with the expected term of the stock-based award being valued. We will continue to utilize this approach until a sufficient amount of historical information regarding the volatility of our own stock price becomes available or until other relevant circumstances change, such as our assessment that our identified entities are no longer appropriate to use as representative companies. In the latter case, more suitable, similar entities with publicly available stock prices would be incorporated in the calculation.

Expected term. In order to estimate the expected term of a stock-based award, we use the simplified method prescribed by SEC Staff Accounting Bulletin No. 107, *Share-Based Payment*, as we do not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected term. Under this approach, the expected term is presumed to be the average of the contractual term (ten years) and the vesting term (generally four years) of the stock-based award. We have not historically experienced, nor do we expect there to be substantially different exercise or post-vesting termination behavior among our employees and directors.

Risk-free interest rate. The risk-free interest rate is based on publicly available yields of U.S Treasury instruments with maturities consistent with the expected term of the stock-based award.

Expected dividend yield. The expected dividend yield is assumed to be zero as we have never paid dividends and have no current plans to pay any dividends on our common stock.

The following weighted-average assumptions were used to calculate the fair value of stock-based awards granted to employees and directors during the periods indicated:

	Year Ended December 31,	
	2016	2017
Risk-free interest rate	1.64%	1.83%
Expected volatility	73.22%	77.59%
Expected dividend yield	—	—
Expected term (in years)	6.02	6.08

We will continue to use judgment in evaluating these assumptions on a prospective basis.

Stock-based compensation expense is reflected in the statements of operations and comprehensive loss for the periods indicated as follows (in thousands):

	Year Ended December 31,	
	2016	2017
Research and development	$ 108	$ 175
General and administrative	74	227
Total	$ 182	$ 402

Stock-based compensation expense related to unvested stock option grants not yet recognized as of December 31, 2017 was $1.9 million. The weighted-average period over which these grants are expected to vest is 3.0 years. We expect to continue to grant stock options in the future, and to the extent we do, our actual stock-based compensation expense recognized in future periods will likely increase.

The intrinsic value of all outstanding options as of , 2018 was approximately $ million, based on the assumed initial public offering price of $ per share, which is the midpoint of the estimated initial public offering price range set forth on the cover page of this prospectus, of which approximately $ million is related to vested options and approximately $ million is related to unvested options.

Determination of Fair Value of Common Stock on Grant Dates

The estimated fair value of the common stock underlying our stock options was determined at each grant date by our board of directors, with input from management. All options to purchase shares of our common stock are intended to be exercisable at a price per share not less than the per-share fair value of our common stock underlying those options on the date of grant. As a private company with no active public market for our common stock, our board of directors has periodically determined the estimated per-share fair value of our common stock considering, among other things, contemporaneous valuations performed by independent valuation specialists in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*, (the "Practice Aid").

The Practice Aid identifies various available methods for allocating enterprise value across classes and series of capital stock in order to determine the estimated fair value of common stock at each valuation date. In accordance with the Practice Aid, our board of directors considered a number of available methods including those described below. Each of these methods requires the use of significant judgments including making assumptions regarding our future operating performance, as

well as the timing and probability of future financing and liquidity events. The relative probabilities and timing surrounding each future event were determined based on an analysis of our prospects and market conditions at the time. The enterprise valuations utilized in each method were historically determined using either the guideline public company method, the similar transaction method or backsolved using a contemporaneous transaction of our convertible preferred stock. For valuations derived using the guideline public company method and similar transaction method, we focused on life science companies at similar stages of development that recently completed initial public offerings or had recently consummated a liquidation event. Resulting valuations associated with these future scenarios were discounted back to the valuation date using an appropriate risk-adjusted discount rate. Finally, we applied discounts for lack of marketability to our common stock to account for the lack of access to an active public market. If different methodologies or assumptions were used, our stock-based compensation expense, net loss and net loss per share applicable to common stockholders could have been significantly different.

Option-Pricing Method. The option-pricing method ("OPM"), treats the various classes of capital stock as call options on the total equity value of a company, with exercise prices determined using thresholds for each equity value that results in a change in the allocation to each class of capital stock. Accordingly, common stock only has value if the funds available for distribution to stockholders exceeds all current and future preferred stock liquidation preferences modeled at the time of a liquidity event, such as a strategic sale, merger or disposition of the Company. In order to calculate the fair value of the various call options, the OPM incorporates the Black-Scholes option-pricing model. The Black-Scholes option-pricing model requires management to make additional assumptions such as the expected volatility of the underlying equity securities. Expected volatility utilized in our valuation models was based on the historical trading volatility of our publicly traded peer companies, which we assess for reasonableness and update on a continuous basis as necessary.

Probability-Weighted Expected Return Method. The probability-weighted expected return method ("PWERM"), is a scenario-based analysis that estimates value per share based upon an analysis of future values for the company, assuming various outcomes. The common stock value is based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available as well as the rights of each class of stock. The future value of the common stock under each outcome is discounted back to the valuation date at an appropriate risk-adjusted discount rate and probability weighted to arrive at an indication of value for the common stock.

Hybrid Method. The Hybrid Method is a blended approach using aspects of both the PWERM and OPM, in which the equity value in one of the scenarios is calculated using an OPM. In the hybrid method used by us, two types of future-event scenarios were considered: an IPO and an unspecified liquidity event.

Based on our early stage of development and other relevant factors, we determined that an OPM was the most appropriate method for allocating enterprise value for our November 2015 common stock valuation. For the common stock valuation that we performed in December 2016, we determined the PWERM to be the most appropriate as we were within twelve to eighteen months from a potential IPO. We determined the Hybrid Method to be the most appropriate for subsequent valuations performed in August 2017 and November 2017, as this method functions similar to the PWERM while also considering primary and secondary equity transactions in our stock that occurred at or around the time of each respective valuation date.

The dates of our contemporaneous valuations have not always coincided with the dates of our stock option grants. In determining the exercise prices of the stock options, our board of directors considered, among other things, the most recent contemporaneous valuations of our common stock

and our assessment of additional objective and subjective factors we believed were relevant as of the grant date. The additional factors considered when determining any changes in fair value between the most recent contemporaneous valuation and the grant dates included our stage of research and development, our operating and financial performance and current business conditions.

Once a public trading market for our common stock has been established in connection with the completion of this offering, it will no longer be necessary for us to estimate the fair value of our common stock in connection with our accounting for stock-based awards, as the fair value of our common stock will be equal to its trading price on the primary stock exchange on which our common stock is traded.

Income Taxes

We account for income taxes under the asset and liability method. Current income tax expense or benefit represents the amount of income taxes we expect to pay or have refunded in the current year. Our deferred income tax assets and liabilities are determined based on differences between financial statement reporting and tax basis accounting of assets and liabilities and net operating loss and credit carryforwards, which we measure using the enacted tax rates and laws that will be in effect when such items are expected to reverse. We reduce deferred income tax assets, as necessary, by applying a valuation allowance to the extent that we determined it is more likely than not that some or all of our tax benefits will not be realized.

We account for uncertain tax positions in accordance with ASC 740-10, *Accounting for Uncertainty in Income Taxes*. We assess all material positions reflected in our income tax returns, including all significant uncertain positions, for all tax years that are subject to assessment or challenge by relevant taxing authorities. Upon determining the sustainability of our positions, we measure the largest amount of benefit possessing greater than fifty percent likelihood of being realized upon ultimate settlement. We reassess such positions at each balance sheet date to determine whether any factors underlying the sustainability assertion have changed and whether or not the amount of the recognized tax benefit is still appropriate.

As of December 31, 2017, our gross deferred tax assets were $18.1 million. Due to our lack of earnings history and uncertainties surrounding our ability to generate future taxable income, we have offset the total net deferred tax assets with a full valuation allowance. The deferred tax assets were primarily comprised of federal and state tax net operating losses, (“NOLs”), which may be limited by certain rules governing changes in ownership, as defined in Section 382 of the Internal Revenue Code of 1986, as amended. Similar rules may apply under state tax laws. Our ability to use our remaining NOLs may be further limited if we experience future ownership changes, including changes experienced in connection with this offering.

The recognition and measurement of tax benefits requires significant judgment, especially in assessing uncertain tax positions. Judgments concerning the recognition and measurement of our tax benefits, as well as limitations surrounding their realizability, might change as new information becomes available.

Recent Accounting Pronouncements

See Note 2 to our financial statements for recently issued accounting pronouncements, including the respective effective dates of adoption and effects on our results of operations and financial condition.

JOBS Act

In April 2012, the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"), was enacted. Section 107 of the JOBS Act provides that an emerging growth company ("EGC"), can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933 as amended, (the "Securities Act"), for complying with new or revised accounting standards. Thus, an EGC can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected not to avail ourselves of this extended transition period and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

We will remain an emerging growth company until the earliest of (i) the last day of our first fiscal year in which we have total annual gross revenues of $1.07 billion or more, (ii) the date on which we are deemed to be a "large accelerated filer" under the rules of the SEC with at least $700.0 million of outstanding equity securities held by non-affiliates, (iii) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the previous three years or (iv) the last day of our fiscal year following the fifth anniversary of the date of the completion of this offering.

Results of Operations

Comparison of the Years Ended December 31, 2016 and 2017

The following table summarizes our results of operations for the periods indicated (in thousands):

	Year Ended December 31,	
	2016	2017
Operating expenses:		
Research and development	$ 14,672	$ 18,506
General and administrative	2,388	3,748
Total operating expenses	17,060	22,254
Loss from operations	(17,060)	(22,254)
Interest expense, net	(51)	(1,302)
Other income (expense), net	11	(287)
Loss before benefit from income taxes	(17,100)	(23,843)
Provision for (benefit from) income taxes	—	(291)
Net loss and comprehensive loss	$ (17,100)	$ (23,552)

Research and Development Expenses

Research and development expenses were $18.5 million for 2017 compared to $14.7 million for 2016, an increase of $3.8 million. The increase in research and development expenses was primarily attributable to an additional $2.6 million in consulting and personnel-related costs resulting primarily from our increased employee headcount, as well as $2.1 million of incremental AK002 contract research and development costs, primarily attributable to the production of clinical material in 2017. Further increases of $0.7 million in other unallocated research and development costs were primarily related to the conduct of in-house research, including activities supporting the continued development of antibodies in our pipeline. Increases were offset by a year-over-year decrease of $1.6 million in AK001 contract research and development costs as a result of our discontinuation of AK001 development efforts during 2017.

General and Administrative Expenses

General and administrative expenses were $3.7 million for 2017 compared to $2.4 million for 2016, an increase of $1.3 million. The increase in general and administrative expenses was primarily attributable to an additional $1.1 million in personnel-related costs as a result of our increase in employee headcount, as well as an additional $0.2 million in other allocated costs.

Interest Expense, Net

Interest expense, net was $1.3 million for 2017 compared to $51,000 for 2016, an increase of $1.2 million. The increase in interest expense, net was primarily attributable to interest expense of $1.1 million associated with convertible promissory notes payable to related parties that were outstanding during 2017, as well as additional interest expense of $0.2 million associated with our debt facility with SVB.

Other Income (Expense), Net

Other expense, net was $0.3 million for 2017 compared to other income, net of $11,000 for 2016. The increase in other expense, net of $0.3 million was primarily attributable to $0.2 million from loss on extinguishment of our debt facility with SVB that was repaid during 2017.

Provision for (Benefit from) Income Taxes

Benefit from income taxes was $0.3 million for 2017, which was solely attributable to the intra-period tax accounting effect related to the beneficial conversion feature associated with our convertible promissory notes payable to related parties. See Note 7 to the Financial Statements. We did not record a benefit from income taxes for 2016.

Liquidity and Capital Resources

Sources of Liquidity

We are a clinical stage biotechnology company with a limited operating history, and due to our significant research and development expenditures, we have generated losses since our inception. Through December 31, 2017, we have financed our operations to date primarily through private placements of convertible preferred stock. These private placements provided gross proceeds of $146.9 million. We also had a debt facility with SVB, for an aggregate of $5.0 million, which was fully repaid and terminated during 2017. As of December 31, 2017, we had cash and cash equivalents of $85.2 million.

Based on our existing business plan, we believe that our existing cash and cash investments, prior to this offering, will be sufficient to fund our anticipated level of operations through at least the next twelve months.

Summary Cash Flows

The following table summarizes the primary sources and uses of our cash and cash equivalents for the periods indicated (in thousands):

	Year Ended December 31,	
	2016	2017
Net cash used in operating activities	$ (17,578)	$ (22,568)
Net cash used in investing activities	(234)	(264)
Net cash provided by financing activities	24,012	94,623
Net increase in cash and cash equivalents	$ 6,200	$ 71,791

Cash Used in Operating Activities

Net cash used in operating activities was $22.6 million for 2017, which was primarily attributable to our net loss of $23.6 million. Cash used in operating activities included a net decrease of $0.7 million in operating assets and liabilities, offset by non-cash charges related to the amortization of the beneficial conversion feature associated with convertible promissory notes payable to related parties of $0.9 million, stock-based compensation of $0.4 million, depreciation and amortization of $0.2 million, stated interest on convertible promissory notes payable to related parties of $0.2 million and our loss on extinguishment of debt of $0.2 million.

Net cash used in operating activities was $17.6 million for 2016, which was primarily attributable to our net loss of $17.1 million. Cash used in operating activities included a net decrease of $0.8 million in operating assets and liabilities, offset by non-cash charges related to stock-based compensation of $0.2 million and depreciation and amortization of $0.1 million.

Cash Used in Investing Activities

Net cash used in investing activities was $0.3 million for 2017, which was entirely attributable to purchases of property and equipment.

Net cash used in investing activities was $0.2 million for 2016, which was entirely attributable to purchases of property and equipment.

Cash Provided by Financing Activities

Net cash provided by financing activities was $94.6 million for 2017, which was primarily the result of $92.3 million of net proceeds received from private placements of our convertible preferred stock, as well as $7.4 million of net proceeds received from the issuance of convertible promissory notes payable to related parties and $0.2 million of net proceeds from the exercise of employee stock options. Cash used in financing activities included $5.3 million of repayments of our historical debt facility with SVB.

Net cash provided by financing activities was $24.0 million for 2016, which was primarily the result of $19.0 million of net proceeds received from private placements of our convertible preferred stock as well as $5.0 million of borrowings drawn as part of our historical debt facility with SVB.

Funding Requirements

We will continue to require additional capital to develop our product candidates and fund operations for the foreseeable future. We may seek to raise funding through private or public equity or debt financings, or other sources such as strategic collaborations. Adequate additional funding may not be available to us on acceptable terms or at all. Our failure to raise capital as and when needed could have a negative impact on our financial condition and our ability to pursue our business strategies.

The timing and amount of our capital expenditures will depend many factors, including:

- the number and scope of clinical indications and clinical trials we decide to pursue;
- the scope and costs of commercial manufacturing activities;
- the extent to which we acquire or in-license other product candidates and technologies, if any;
- the cost, timing and outcome of regulatory review of our product candidates;
- the cost and timing of establishing sales and marketing capabilities for product candidates receiving marketing approval, if any;

- the costs of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;
- our efforts to enhance operational systems and our ability to attract, hire and retain qualified personnel, including personnel to support the development of our product candidates; and
- the costs associated with being a public company.

If we are unable to raise additional funds when needed, we may be required to delay, reduce or terminate some or all of our development and commercialization efforts. We may also be required to sell or license to others rights to our product candidates in certain territories or indications that we would prefer to develop and commercialize ourselves.

The issuance of additional equity securities may cause our stockholders to experience dilution. Future equity or debt financings may contain terms that are not favorable to us or our stockholders including debt instruments imposing covenants that restrict our operations and limit our ability to incur liens, issue additional debt, pay dividends, repurchase our common stock, make certain investments or engage in certain merger, consolidation, licensing or asset sale transactions.

Contractual Obligations and Commitments

The following table outlines our contractual obligations and commitments at December 31, 2017 (in thousands):

	Payments Due by Period		
	Total	Less than 1 Year	1-3 Years
Operating lease obligations (1)	$ 624	$ 414	$210
Purchase commitments (2)	909	909	—
Total	$1,533	$ 1,323	$210

(1) Operating lease obligations represent future minimum lease payments due under our facility leases existing as of December 31, 2017.
(2) Purchase commitments represent noncancelable minimum purchase commitments due to a third party CDMO.

Operating lease obligations in the table above exclude $14.0 million of minimum payments related to our new lease agreement executed in January 2018 payable over the base term of the lease. We are expected to begin making monthly rental payments 9 months following lease commencement, which is the substantial completion and delivery of the premises to us. The base term of the lease is 10.75 years with an option to extend an additional term of 5 years. In addition to future operating lease obligations, we also reserved $0.8 million of our cash and cash equivalents to secure a letter of credit to satisfy the lessor's security deposit requirement.

The purchase commitment amounts in the table above relate to contracts that are enforceable and legally binding and specify all significant terms, including fixed or minimum services to be used, fixed, minimum or variable price provisions and the approximate timing of the services to be received under the agreements. In addition to purchase commitments to our CDMO included in the table above, we also enter into contracts in the normal course of business with various CROs that generally provide for contract termination following a certain notice period. Accordingly, we believe that our non-cancelable obligations under such agreements are not material and therefore have excluded these from the table above.

We have not included contingent payments associated with our license agreements in the table above as we cannot reasonably estimate if or when they will occur, and we have not included minimum payment obligations because the license agreements are terminable by us upon prior notice.

Off-Balance Sheet Arrangements

Since our inception, we have not entered into any off-balance sheet arrangements as defined in the rules and regulations of the SEC.

Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Sensitivity

We are exposed to market risk related to changes in interest rates. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates, particularly because our investments, including cash and cash equivalents, are in a money market funds that invest in U.S. Treasury obligations. The primary objective of our investment activities is to preserve capital to fund our operations. We also seek to maximize income from our investments without assuming significant risk. Due to the short-term maturities and low credit risk profile of our balances held in money market funds, a hypothetical 10% change in interest rates would not have a material effect on the fair market value of our cash and cash equivalents.

Foreign Currency Sensitivity

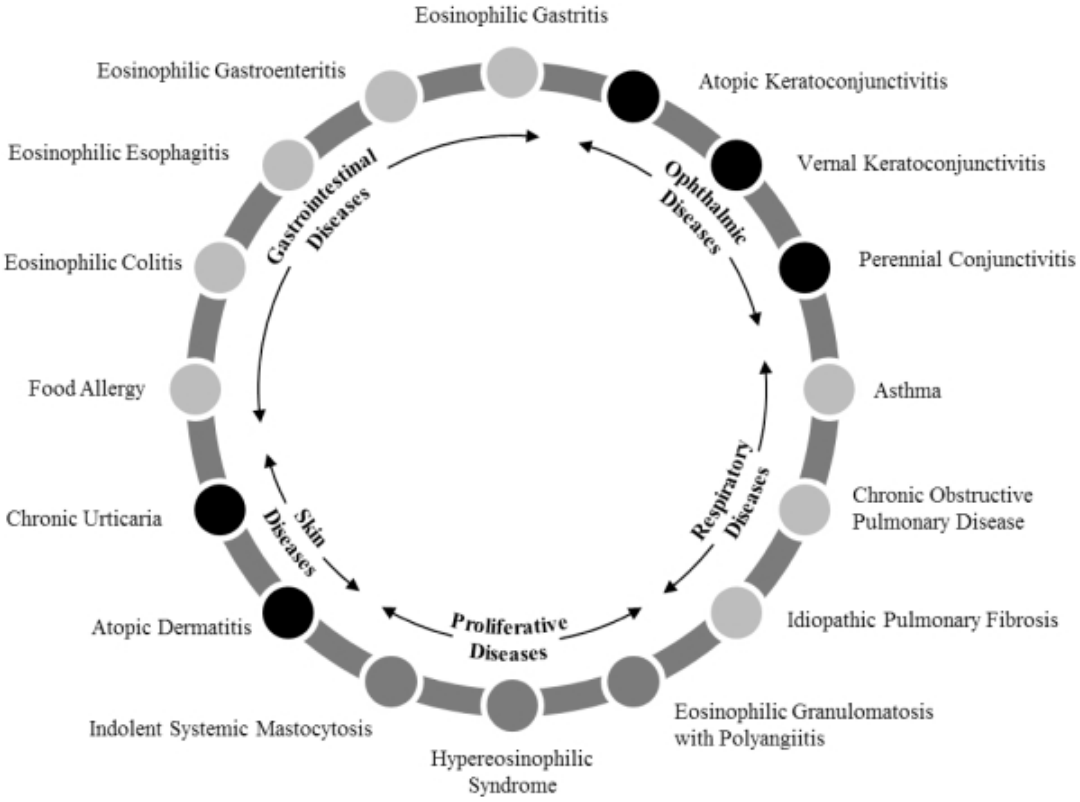
Our primary operations are transacted in U.S. Dollars, however, certain service agreements with third parties are denominated in currencies other than the U.S. Dollar, primarily the British Pound and Euro. As such, we are subject to foreign exchange risk and therefore, fluctuations in the value of the U.S. Dollar against the British Pound and Euro may impact the amounts reported for expenses and obligations incurred under such agreements. We do not currently engage in any hedging activity to reduce our potential exposure to currency fluctuations, although we may choose to do so in the future. A hypothetical 10% change in foreign exchange rates during any of the periods presented would not have had a material impact on our financial condition or results of operations.

BUSINESS

Overview

We are a clinical stage biotechnology company developing AK002, our wholly owned monoclonal antibody that has demonstrated pharmacodynamic activity and promising clinical efficacy in Phase 1 trials. AK002 selectively targets both eosinophils and mast cells, which are types of white blood cells that are widely distributed in the body and play a central role in the inflammatory response. Inappropriately activated eosinophils and mast cells have been identified as key drivers in a number of severe diseases affecting the gastrointestinal tract, eyes, skin, lungs and other organs. As such, AK002 has the potential to treat a large number of severe diseases. We are initially developing AK002 for the treatment of eosinophilic gastritis ("EG"), indolent systemic mastocytosis ("ISM"), chronic urticaria ("CU") and severe allergic conjunctivitis ("SAC"), and plan to explore additional indications in the future.

Figure 1. Select Eosinophil and Mast Cell Related Diseases

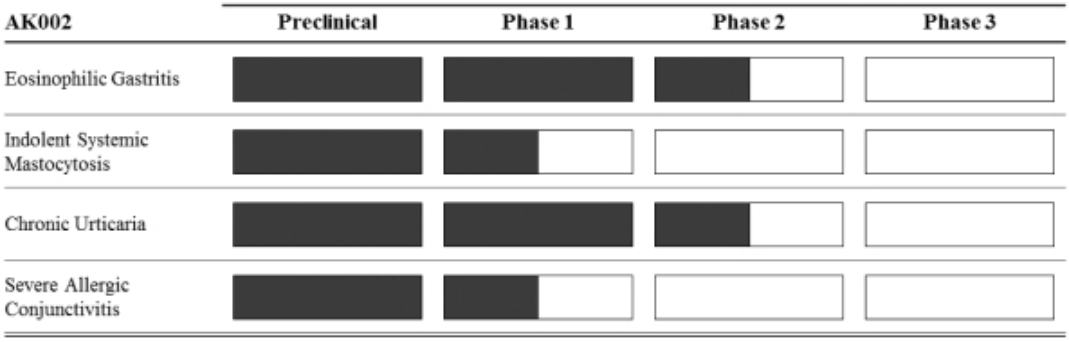


Despite the knowledge that eosinophils and mast cells drive many pathological conditions, there are no approved therapies that selectively target eosinophils and mast cells. Current treatments for the diseases we are pursuing are non-selective and often come with serious side effects that make them unsuitable for long term use. AK002 binds to Siglec-8, an inhibitory receptor found on eosinophils and mast cells, which represents a novel way to selectively deplete or inhibit these important immune cells and thereby resolve inflammation. We believe AK002 is the only Siglec-8 targeting antibody currently in clinical development and has the potential to be safer and more effective than current treatments.

We have shown that AK002 depletes eosinophils and inhibits mast cell activation in Phase 1 clinical trials. In a randomized, double-blind, placebo-controlled Phase 1 trial in 51 healthy volunteers, all doses of AK002 resulted in complete depletion of blood eosinophils within one hour after administration. The duration of depletion was dose-dependent, with a single dose of 1.0 mg/kg of AK002 suppressing eosinophils for up to 84 days. In addition, in the single dose portion of a Phase 1 trial in 13 patients with ISM, a disorder characterized by an increased number of mast cells throughout the body and symptoms related to mast cell activation, patients reported marked improvement in ISM mast cell related symptoms and blood eosinophils were depleted.

We are currently testing AK002 in a double-blind, placebo-controlled Phase 2 trial in patients with EG with or without eosinophilic gastroenteritis ("EGE"). EG and EGE are severe eosinophilic inflammatory diseases of the stomach and small intestine, respectively. AK002 has received orphan drug designation for EG and EGE from the U.S. Food and Drug Administration ("FDA") and we expect to report top-line data from the Phase 2 trial in the second quarter of 2019. As a follow up to the single dose portion of the Phase 1 trial in patients with ISM, we are also testing AK002 in an ongoing six month multi-dose Phase 1 trial in ISM patients. Further, AK002 is being tested in an open-label Phase 2 trial in patients with CU and in a Phase 1 trial in patients with SAC. CU is a group of inflammatory skin diseases that are caused by the inappropriate activation of mast cells in the skin. SAC is a group of allergic eye diseases that are caused by eosinophil and mast cell driven inflammation in the tissues lining the eyes and eyelids. We expect to report top-line data from these three trials in ISM, CU and SAC patients in the first quarter of 2019. The status of our clinical trials is shown below.

Figure 2. AK002 Development Status



We have prioritized our AK002 development efforts based on our assessment of the probability of clinical and regulatory success, unmet medical need and potential market opportunity. We have assembled a team with a proven track record and deep experience in antibody discovery and in clinical development, commercialization, operations and finance from companies such as Genentech, Gilead, Intermune, Novo Nordisk, Pfizer, ZS Pharma and others. Since our inception, we have raised private capital from investors including Alta Partners, RiverVest Partners, Roche Ventures, 3x5 Special Opportunity Partners, New Enterprise Associates, RedMile, Partner Fund Management, Samsara and RockSprings.

Understanding the Foundation of Our Approach

Background on Eosinophils, Mast Cells and Siglec-8

Eosinophils and mast cells are involved in many inflammatory conditions and therefore represent attractive drug targets. Eosinophils and mast cells can respond to signals from allergens, tissues,

bacteria, viruses and also cells of the innate and adaptive immune system. In response, they release a large variety of mediators which can result in tissue damage, fibrosis and the recruitment and activation of other innate and adaptive immune cells. The ability to respond to signals from multiple cell types and the diverse array of mediators that they produce place eosinophils and mast cells in the center of multiple aspects of the inflammatory response.

Eosinophils are normally present in the blood and tissues, especially in the mucosal linings of the respiratory and gastrointestinal tract. However, they can be recruited to any site of the body in the setting of inflammation. Mast cells reside within the connective tissue of a variety of tissues and all vascularized organs, often located in close proximity to blood vessels, nerves and lymphatics. Sites include the dermis, gut mucosa and submucosa, conjunctiva and pulmonary alveoli and airways. As a result of their widespread location and potent inflammatory activity, eosinophils and mast cells have been identified as key drivers in a number of severe diseases of the gastrointestinal tract, eyes, skin and lungs as well as diseases which affect multiple organ systems.

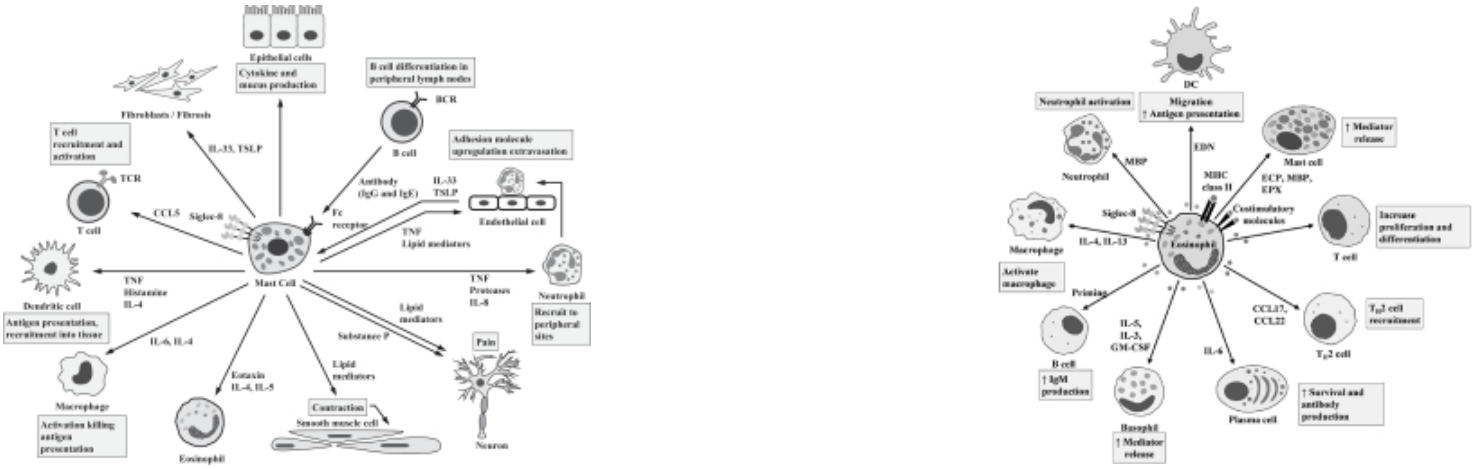
Siglec-8 is an inhibitory receptor located selectively on eosinophils, mast cells and, to a lesser extent, on basophils. Because Siglec-8 is expressed in high abundance only on eosinophils and mast cells, it presents a novel way to selectively target these important immune cells. As an inhibitory receptor, the natural function of Siglec-8 is to counteract activating signals within eosinophils and mast cells that lead to an inflammatory response. By binding to Siglec-8, AK002 is able to selectively target eosinophils and mast cells to resolve inflammation.

Eosinophils and Mast Cells are Effector Cells That are Central to Initiating and Maintaining Inflammatory Responses

Eosinophils and mast cells respond to a variety of activating signals including those from cell-cell contact, allergens bound to IgE, cytokines (including IL-33, thymic stromal lymphopoietin (“TSLP”), IL-5, IL-4 and IL-13) and viruses (through Toll-Like Receptor-3). In response to these and other activating signals, eosinophils and mast cells express a variety of cell surface receptors and also produce a broad range of inflammatory mediators that cause tissue damage and contribute to acute and chronic inflammation. These mediators include vasoactive amines, bioactive lipids, proteases, chemokines and cytokines. The mediators, their functions and their contribution to disease pathogenesis are described in more detail below.

- *Mast cells play an important role in inflammation as the main producer of histamine*. Histamine causes vasodilation and produces intense itching. It is believed to contribute to increased gastrointestinal peristalsis (diarrhea), the skin symptoms of urticaria and ISM, the diffuse vasodilation of anaphylaxis and bronchospasm in asthma.
- *Proteases and toxins secreted from eosinophils and mast cells are the key cause of tissue damage and contribute to tissue fibrosis.* Eosinophil and mast cell secretions are toxic to surrounding cells and break down tissues, resulting in fibrosis and tissue remodeling.
- *Eosinophils and mast cells drive inflammation by signaling to other cells of the immune system.* Eosinophils and mast cells release lipid mediators and a large variety of cytokines (including TNFa, IL-1, IL-3, IL-4, IL-5, IL-6, IL-8, IL-9, IL-13, MCP-1, CCL2, CCL3, CCL5, CCL17, TGFa, TGFb and granulocyte-macrophage colony stimulating factor (“GM-CSF”)) that attract and activate cells of the innate and adaptive immune system, such as neutrophils, monocytes, macrophages, basophils, B-cells, T-cells and dendritic cells, as well as other eosinophils and mast cells.

Figure 3. Eosinophil and Mast Cell Functions

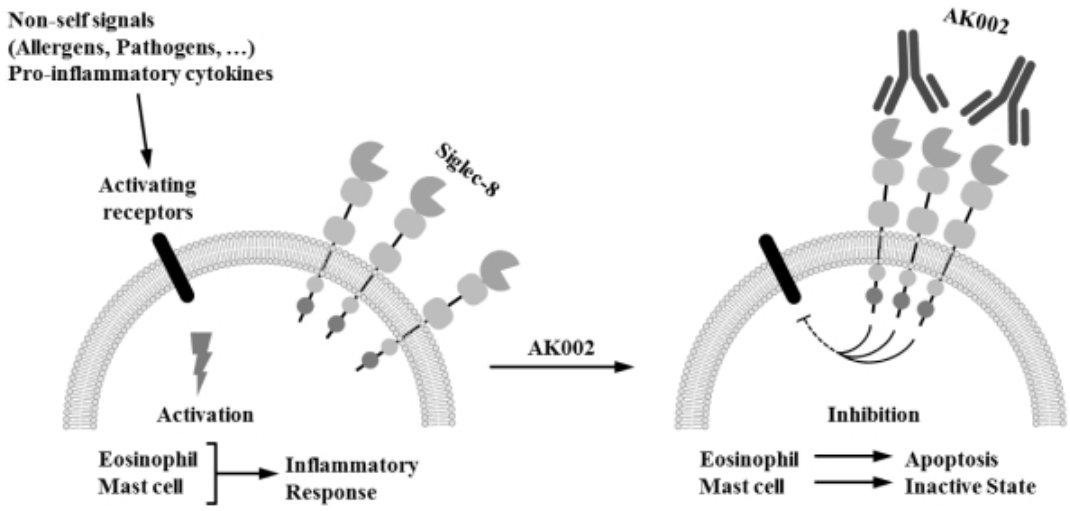


Due to their ability to respond to signals from multiple cell types and elicit responses from others, eosinophils and mast cells mediate the immediate hypersensitivity and late phase responses responsible for allergies and many innate and adaptive immune responses.

Siglec-8 is an Attractive Target for Eosinophils and Mast Cells

Siglec-8 (sialic acid immunoglobulin-like lectin 8) is a constitutively expressed inhibitory receptor that is restricted to eosinophils, mast cells and to a lesser extent basophils (approximately 1/100 the level on mast cells and eosinophils). The physiological function of Siglec-8 is to provide an inhibitory signal to eosinophils and mast cells. Siglec-8 exerts these effects through an intracellular immunoreceptor, tyrosine-based inhibitory motif (“ITIM”) and ITIM-like motif. In contrast to approaches which block a single activating cytokine or receptor, targeting the ITIM signaling cascade (via Siglec-8) has the potential to counteract a broad array of activating signals, which could allow for the treatment of multiple diseases. Antibodies to Siglec-8 have been shown to trigger apoptosis of blood and tissue eosinophils and to inhibit the release of inflammatory mediators from mast cells. This expression pattern and broad inhibitory function make Siglec-8 an attractive target for the selective depletion of eosinophils and inhibition of mast cells.

Figure 4. Siglec-8 Triggers Apoptosis of Eosinophils and Inhibition of Mast Cells



Our Strategy

AK002 has shown pharmacodynamic activity in humans and a broad array of animal disease models of eosinophilic and mast cell driven diseases. We have prioritized our development efforts based on our assessment of the probability of clinical and regulatory success, unmet medical need and potential market opportunity. We have chosen to focus our wholly-owned AK002 program initially on four indications: EG, ISM, CU and SAC. The key elements of our strategy are to:

- ***Rapidly advance AK002 through clinical development in EG.*** AK002 has secured orphan drug designation for the treatment of EG and EGE with the FDA. We have completed a Phase 1 trial in healthy volunteers. In this trial, AK002 exhibited clear signs of pharmacodynamic activity by depleting blood eosinophils as soon as one hour after dosing. We are conducting a Phase 2 trial in patients with EG with or without EGE. We believe this trial, if positive, in conjunction with a future Phase 3 trial will serve as the basis for demonstrating safety and efficacy in our biologics license application ("BLA") and market authorization application ("MAA") submissions.
- ***Develop AK002 for other EGIDs.*** EG is part of a group of related diseases called eosinophilic gastrointestinal diseases ("EGIDs"). These include EG, EGE, eosinophilic esophagitis and eosinophilic colitis. EGIDs share the common pathology of tissue inflammation caused by the presence of elevated numbers of eosinophils. If AK002 shows activity in EG, we expect to conduct clinical trials of AK002 in these related conditions.
- ***Expand opportunity to additional eosinophilic and mast cell driven conditions.*** We are currently conducting clinical trials with AK002 in other eosinophil and mast cell driven diseases, including two Phase 1 trials in patients with ISM and SAC and a Phase 2 trial in patients with CU. Patients in the single ascending dose portion of the ISM trial reported improvements in mast cell related symptoms, and one patient with cholinergic urticaria showed disease resolution for approximately four weeks following a single 0.3 mg/kg dose. Should these clinical trials confirm the activity of AK002 in these indications, we plan to continue to develop AK002 in these indications.
- ***Build commercial capability and retain rights in key markets.*** If AK002 receives regulatory approval, we intend to retain the rights to it in key markets, and plan to

commercialize AK002 in both the United States and Europe through a specialty sales force. EG and other EGIDs, ISM, CU and SAC are severe diseases which lack effective treatments. We believe a significant market opportunity for AK002 exists in each of these diseases.

- ***Coordinate clinical and manufacturing process development*.** AK002 has been produced under current good manufacturing practices ("cGMP") at commercial scale utilizing the commercial process at Lonza Sales AG ("Lonza"), a Contract Development Manufacturing Organization ("CDMO"). We have signed an agreement with Lonza for BLA activities.

AK002 Clinical Development Plan

AK002 was designed to take advantage of the selective expression pattern and inhibitory function of Siglec-8, an inhibitory receptor found on eosinophils, mast cells, and to a lesser extent, on basophils. AK002 is a humanized antibody that binds to Siglec-8 with high affinity (bivalent binding avidity (K_D) = 17 pM, determined by surface plasmon resonance analysis). The high expression level of Siglec-8 on eosinophils and mast cells allows AK002 to selectively deplete eosinophils and inhibit mast cells. AK002 is a non-fucosylated IgG1 antibody engineered to have potent antibody-dependent cellular cytotoxicity ("ADCC"). ADCC is a mechanism whereby the binding of an antibody like AK002 triggers an effector cell of the immune system (usually a natural killer ("NK") cell) to destroy the antibody-bound cell. This provides AK002 with an additional mechanism to deplete eosinophils present in blood, where NK cells also reside. As a result of these dual modes of action, AK002 has been shown to deplete eosinophils in blood and tissue, and to inhibit the release of inflammatory mediators from mast cells.

AK002 has demonstrated activity in a broad array of animal disease models of eosinophilic and mast cell-driven diseases. Consistent with these experiments, human trials have shown that AK002 depletes blood eosinophils and inhibits mast cell function. Across the healthy volunteer and ISM phase 1 studies, 61 subjects that have received AK002 to date. AK002 has generally been well tolerated.

Eosinophilic Gastritis and Eosinophilic Gastrointestinal Disorders

Disease Overview

Eosinophilic gastrointestinal disorders ("EGIDs") are chronic inflammatory disorders that share a similar eosinophilic driven inflammation that occurs along different segments of the gastrointestinal ("GI") tract. Based on the site of eosinophilic infiltration the EGIDs are subcategorized into eosinophilic esophagitis (esophagus, "EoE"), EG (stomach), EGE (duodenum and small intestine) and eosinophilic colitis (colon, "EC"). The EGIDs affect collectively up to 300,000 patients in the United States, though individually they are orphan diseases.

EG is a rare disease that is characterized by chronic inflammation due to patchy or diffuse infiltration of eosinophils into layers of the stomach. EG can occur with eosinophilia isolated to the stomach, or often in combination with eosinophilia of the small intestine. Diagnosis is established based on clinical presentation (gastrointestinal symptoms) combined with increased tissue eosinophils in biopsy specimens from the stomach and/or duodenum without any other cause for the eosinophilia. The presence of greater than 30 eosinophils per high powered field ("hpf") in 5 stomach biopsies identifies the presence of EG. The estimated prevalence of EG in the United States is approximately 20,000 to 25,000 patients, and the estimated prevalence of EGE in the United States is approximately 25,000 patients and we believe these diseases may be significantly underdiagnosed.

It is believed that EG and other EGIDs arise in some patients from food allergies or other allergens that cause a hypersensitivity reaction that leads to recruitment of eosinophils to the GI tract. The

gastrointestinal symptoms are believed to be due to the release of inflammatory mediators from activated eosinophils. Mast cells are also elevated and believed to play a role. Elevated serum immunoglobulin E ("IgE") levels and food-specific IgE are correlated with EG in some patients and provide evidence for the allergy hypothesis and mast cell involvement. Symptoms commonly include abdominal pain, nausea, vomiting, diarrhea, malnutrition and weight loss.

Current Therapies and Limitations

There are no FDA-approved treatments for EG or EGE. Current therapies and disease management strategies include restricted/elemental diets and systemic or topical corticosteroids. Restricted/elemental diets are designed to avoid foods which trigger symptoms. Unfortunately for most patients the restricted/elemental diets are only partially effective and mainly used as a strategy to provide nutrition despite continuing symptoms. Corticosteroids, systemic or topical, can provide symptom relief, but are not appropriate for long-term treatment due to their numerous side effects. By reducing the number of blood and tissue eosinophils and inhibiting mast cells, AK002 may be effective in the treatment of patients with EG or EGE.

Clinical Results

AK002 was tested in a randomized, double-blind, placebo-controlled, dose-escalating Phase 1 trial conducted in Melbourne, Australia. 51 healthy volunteers were randomized to receive doses of AK002 (0.001, 0.003, 0.01, 0.03, 0.1, 0.3, or 1.0 mg/kg) or placebo. The primary endpoints of the trial were safety and tolerability. The secondary endpoints included pharmacokinetic and pharmacodynamic ("PK/PD") measurements, including changes in the absolute peripheral blood counts of eosinophils.

As shown in Figure 5, all doses of AK002 tested resulted in complete depletion of blood eosinophils one hour after administration, clearly demonstrating the pharmacodynamic activity of AK002. The duration of depletion was dose-dependent with a single dose of 1.0 mg/kg of AK002 suppressing eosinophils for up to 84 days. AK002's half-life was determined to be 18 days.

Figure 5. Single Dose Placebo and AK002 Eosinophil Response

	Blood Eosinophils 10^3/mL				
Dose Cohort (mg/kg)	**Placebo Pre-dose**	**Placebo 1 Hr Post-dose**	**AK002 Pre-dose**	**AK002 1 Hr Post-dose**	**Minimal Duration Eos Depletion**
0.001	NA	NA	70	0	1 Day
0.003	120	70	160	0	2 Days
0.01	210	150	160	0	4-7 Days
0.03	150	150	160	0	7-14 Days
0.1	100	80	250	0	14-28 Days
0.3	180	140	180	0	28 Days
1.0	60	40	120	0	56-84 Days

In the multi-dose portion of the trial, subjects received monthly doses of 0.3 mg/kg. Monthly administrations of this dose provided sustained eosinophil depletion for the duration of dosing.

Across the healthy volunteer and ISM Phase 1 trials, 61 subjects have received AK002 at single doses ranging from 0.0003 to 1.0 mg/kg and multiple doses of 0.3 to 3.0 mg/kg. These subjects received up to six doses of AK002 given monthly for six months. AK002 has generally been well tolerated in our clinical trials. The most common adverse event has been the occurrence of mild to

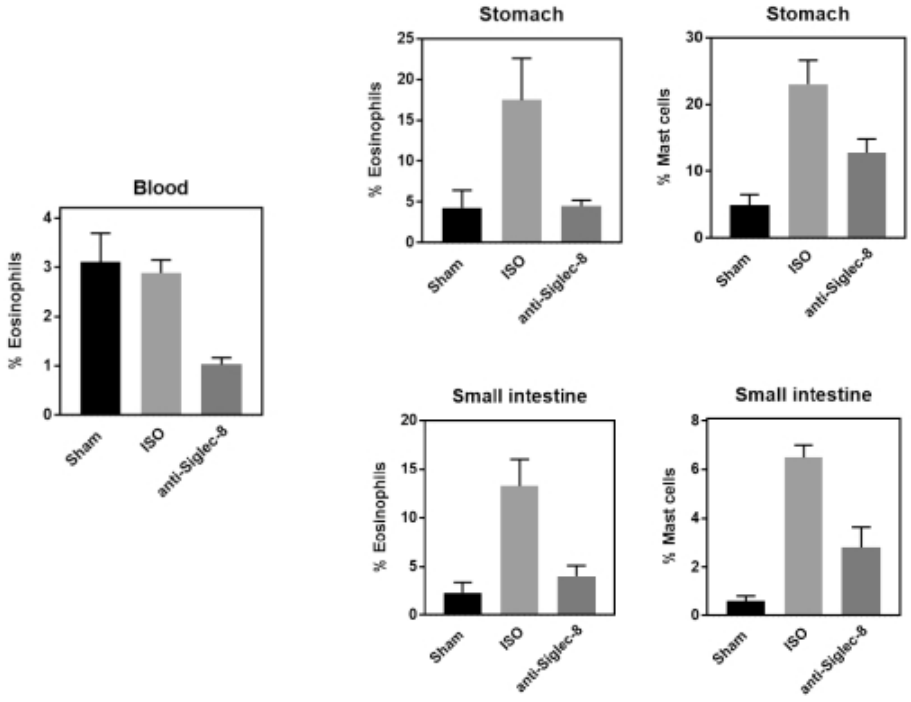
moderate infusion-related reactions (“IRRs”) (flushing, feeling of warmth, headache, nausea and dizziness), which occurred mostly during the first infusion and diminished or did not occur on subsequent infusions. In the Phase 1 healthy volunteer trial, one subject treated with 1.0 mg/kg administered over one hour experienced an infusion reaction three hours after dosing, including nausea, vomiting and hypotension, which was considered severe and led to the subject discontinuing from the trial.

There were no clinically significant effects of AK002 identified in vital signs, ECGs, clinical laboratory parameters (including hematology, clinical chemistry and urinalysis) or physical examinations. In both trials, there was a transient decrease in lymphocyte count after the AK002 infusion (resolving within one day), as seen with certain other monoclonal antibodies, that was not associated with any adverse event and a sustained depletion in eosinophils, consistent with the mechanism of action of AK002.

Anti-Siglec-8 Antibody Reduces Eosinophil and Mast Cell Levels in EG/EGE Model

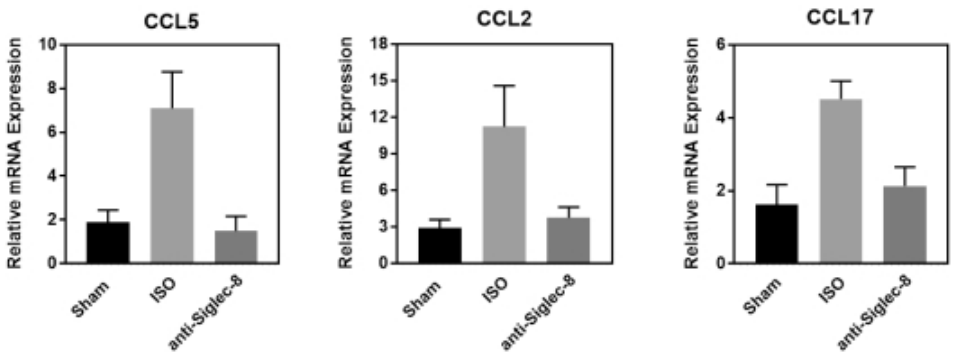
In this model, two groups of Siglec-8 transgenic mice were sensitized with ovalbumin to induce eosinophil and mast cell driven gastrointestinal inflammation similar to that observed in EG and other EGIDs. A third group of animals was administered phosphate buffered saline to serve as normal unsensitized sham controls (“sham”). Treatment with a single dose of anti-Siglec-8 antibody led to lower levels of eosinophils in the blood, stomach and small intestine and reduced numbers of mast cells in the stomach and small intestine compared to mice that received an isotype control antibody (“ISO”).

Figure 6. EG/EGE Model Eosinophil and Mast Cell Counts in Blood, Stomach and Small Intestine



Anti-Siglec-8 treatment also reduced the levels of multiple important chemokines (CCL5/Rantes, CCL2/MCP-1, CCL17) to the levels of sham control animals. Chemokines are known to recruit and activate cells of the innate and adaptive immune system. By normalizing chemokine secretions, AK002 may be able to reduce further recruitment of immune cells and thereby interrupt the inflammatory cascade.

Figure 7. Chemokine Levels in the EG/EGE Mouse Model



Development Plan

AK002 has received orphan drug designation in the United States for the treatment of EG and EGE. We have initiated a randomized, double-blind, placebo-controlled Phase 2 trial with AK002 in patients with EG with or without EGE. The trial is planned to enroll approximately 60 patients with active, moderate to severe, biopsy-confirmed EG (>30 eosinophils/hpf in 5 hpf), and will randomize patients 1:1:1 to receive: (a) four monthly doses of 0.3 mg/kg AK002, (b) 0.3 mg/kg for the first month followed by three doses of 1.0 mg/kg AK002 given monthly, or (c) monthly placebo. The primary endpoint is the reduction in gastric eosinophils post-treatment with AK002. We have developed a proprietary daily Patient Reported Outcome (“PRO”) questionnaire to be used to assess the change in EG patient symptoms, such as abdominal pain, cramping, nausea/vomiting and diarrhea, in our clinical trials. The PRO was developed based on published guidance from the FDA on the development of PRO instruments, and is expected to be used to help determine safety and efficacy in future clinical trials.

We anticipate that a number of EG patients enrolled in the trial will also have EoE or EGE. If sufficient patients with EoE and EGE are enrolled in the trial, it may be possible to evaluate response to treatment with AK002 in these diseases as well. Patients completing the randomized portion of the trial will be eligible to enroll in a nine month safety exposure trial. Top-line data from the Phase 2 trial are expected during the second quarter of 2019. Based on discussions with the FDA, we believe that this Phase 2 trial, if successful, and a single Phase 3 trial, if successful, may be sufficient for regulatory approval of AK002 in EG.

Figure 8. EG Phase 2 Trial Design

Design		Key Endpoints
• **Randomized, double-blind, placebo controlled** • **60 Patients – 3 arms** — **20 patients 0.3 mg/kg** — **20 patients 0.3 mg/kg, then 1.0 mg/kg** — **20 patients placebo** • **Multiple doses (x4)**	**Primary**	• Eosinophils per high powered field from gastric biopsies
	Secondary	• Patient reported outcomes: abdominal pain, nausea, diarrhea, vomiting • Assessment of comorbid EGE

Indolent Systemic Mastocytosis

Disease Overview

Indolent systemic mastocytosis ("ISM") is a rare disease characterized by the clonal proliferation and accumulation of mast cells in the bone marrow, respiratory and gastrointestinal tracts, and organs such as the skin, liver, spleen and brain. Common symptoms include pruritus, flushing, headache, cognitive impairment, fatigue, diarrhea, gastrointestinal cramps, hypotension and skin lesions, as well as an increased risk for osteoporosis and anaphylaxis, which in some cases can be life threatening. The symptoms of ISM are attributed to mast cell activation and the systemic release of mediators. Approximately 30,000 patients in the United States suffer from ISM.

Current Therapies and Limitations

There are currently no drugs approved for the treatment of ISM by the FDA or EMA. ISM is treated with drugs targeting mast cell mediators, including antihistamines, cromolyn sodium and leukotriene blocking agents. Most patients' symptoms remain poorly controlled by these treatments. Glucocorticoids can provide temporary relief in some cases; however long-term treatment with steroids is not appropriate due to their many side effects.

Clinical Results

AK002 is being evaluated in an open-label, single and multiple ascending dose Phase 1 trial in patients with ISM. The single dose portion of this trial was completed during the second quarter of 2017, and the six month multi-dose portion is ongoing. In the single dose portion, 13 patients received single escalating doses of 0.0003 to 1.0 mg/kg, including three patients receiving 0.3 mg/kg and three patients receiving 1.0 mg/kg of AK002. Thus far in the multi-dose portion of the trial, six patients have received six doses of 1.0 mg/kg of AK002 given monthly and six patients have received 1.0 mg/kg for the first month and will be given monthly doses of 3.0 to 10 mg/kg of AK002 for five months. The primary endpoints of this trial are safety and tolerability. Key secondary endpoints are the PK/PD profile, peripheral counts of eosinophils and mastocytosis disease activity measures.

Results from the completed single dose portion of the trial indicate that AK002 has pharmacodynamic activity. Single doses of AK002 depleted blood eosinophils, with dose-dependent duration of depletion similar to the healthy volunteer trial. In addition, five out of six patients reported improvements in symptoms, including diarrhea, abdominal pain, fatigue, pruritus, difficulty concentrating and headaches, and, in one patient, resolution of comorbid cholinergic urticaria (a disease that is believed to be caused by the activation of mast cells) for approximately four weeks.

These encouraging initial reports of symptom improvement will be more fully explored in the multi-dose portion of the ISM trial.

The multi-dose portion of the trial is fully enrolled with 12 patients in two AK002 dosing cohorts. We have developed a proprietary daily PRO questionnaire to assess the change in ISM patient symptoms in our clinical trials. The PRO was based on published guidance from the FDA on the development of PRO instruments, and is expected to be used to help determine safety and efficacy in future clinical trials. The questionnaire consists of nine symptom assessments, with each symptom being scored on a 0-10 scale and higher values representing greater symptom burden (total score 0-90 points).

Development Plan

AK002 has received orphan drug designation from the European Medicines Agency for the treatment of ISM. AK002 has been evaluated in an open-label, single-arm, dose-escalating Phase 1 trial in patients with ISM. The single dose portion of this trial was completed during the second quarter of 2017, and the multi-dose portion is ongoing in 12 patients (Figure 9). We expect to report data from this trial in the first quarter of 2019. Encouraging reports of symptom improvements in the single dose phase have been reported. If similar responses are observed in the ongoing multi-dose trial, we anticipate conducting a placebo controlled double blind trial to confirm activity.

Figure 9. Ongoing Multi-Dose ISM Phase 1 Trial

Design		Key Endpoints
• **Open-label trial** • **12 patients – 2 cohorts** — **6 patients 1.0 mg/kg** — **6 patients 1.0 mg/kg, then 3.0 to 10 mg/kg** • **Multiple doses (x6)**	**Primary**	• Safety and tolerability
	Secondary	• Patient reported outcomes: itching, hives, skin flushing, diarrhea, abdominal pain, fatigue, headache, difficulty concentrating, muscle and joint pain

Chronic Urticarias – Cholinergic Urticaria, Chronic Spontaneous Urticaria, Symptomatic Dermatographism

Disease Overview

Chronic urticarias (“CU”) are a group of skin conditions which are characterized by recurrent transient pruritic wheal and flare type skin reactions and, in roughly 40% of patients, angioedema. Symptoms include itching, redness, raised welts, burning, warmth, tingling and irritation of the skin. Patients with CU are often severely impaired in their quality of life, with negative effects on sleep, daily activities, school/work life and social interactions. Urticaria symptoms are caused by degranulation of dermal mast cells, with IgE signaling believed to contribute to mast cell activation in many cases. The most common forms of CU are chronic spontaneous urticaria (“CSU”), cholinergic urticaria and symptomatic dermatographism.

Despite sharing similar inflammatory pathology, urticarias differ in the triggers that cause the inflammatory response. Cholinergic urticaria patients typically develop symptoms a few minutes after exercise or passive warming in a bath or shower. In some cholinergic patients, emotional stress or hot and spicy food or beverages can also elicit symptoms. Symptomatic dermatographism is characterized by whealing and itching following a minor stroking pressure, rubbing or scratching of the skin. In CSU,

itchy, wheal-and-flare-type skin reactions spontaneously appear on the skin at any time of the day or night. In most CSU patients, an underlying cause of CSU cannot be identified making a causal and/or curative treatment difficult. We estimate that approximately 200,000 patients with CSU, cholinergic urticaria and symptomatic dermatographism could be candidates for therapy with AK002.

Current Therapies and Limitations

The current treatment guidelines for the management of all forms of urticaria recommend the use of non-sedating oral H1-antihistamines as first-line therapy. For patients that do not respond to standard doses of H1-antihistamines, doses are increased to as high as four times the standard dose. Though this can increase the response rates, side effects also increase, including sedation and anticholinergic effects, such as dry mouth, blurred vision, urinary retention and constipation. Patients that do not respond to or are unable to tolerate high dose antihistamines have few options. For cholinergic urticaria and symptomatic dermatographism patients, it is recommended that they avoid target triggers such as overheated spaces, hot baths/showers, exercise, specific food allergens and excessive contact. For antihistamine refractory patients with CSU, the only currently approved treatment is omalizumab, a monoclonal anti-IgE antibody. Unfortunately, approximately 60% of CSU patients continue to have symptoms despite treatment with omalizumab ("Xolair").

Development Plan

We are conducting an open-label Phase 2 trial with AK002 in patients with urticaria. The trial is enrolling patients with different forms of urticaria: CSU (Xolair naïve and Xolair failures), cholinergic urticaria and symptomatic dermatographism. Approximately 40 patients are expected to be enrolled, and will receive six monthly doses of AK002. The primary endpoint of the trial is patient reported symptoms measured by the urticaria control test ("UCT"). Secondary endpoints include safety and tolerability, as well as other measures of itching, hives and swelling, including the urticaria activity score 7 ("UAS7") and cholinergic UAS7 ("cholUAS7"). We expect to report data from this trial in the first quarter of 2019.

Figure 10. CU Phase 2 Trial Design

Design		Key Endpoints
• **Open-label trial** • **40 patients – 4 cohorts** — **10 CSU Xolair naive** — **10 CSU Xolair failures** — **10 Cholinergic urticaria** — **10 Dermatographic urticaria** • **0.3 mg/kg, then 1.0 to 3.0 mg/kg** • **Multiple doses (x6)**	**Primary**	• Patient reported outcome (UCT)
	Secondary	• Safety and tolerability • Patient reported outcomes: itching, hives, swelling, UAS7 and cholUAS7

Severe Allergic Conjunctivitis

Disease Overview

Atopic keratoconjunctivitis ("AKC"), vernal keratoconjunctivitis ("VKC") and perennial allergic conjunctivitis ("PAC") are a set of allergic ocular conjunctival diseases primarily associated with an IgE-mediated hypersensitivity reaction. We are focused on the severe forms of these diseases, which are

collectively referred to as severe allergic conjunctivitis (“SAC”). These conditions are often caused by airborne allergens, such as grass and tree pollens, coming into contact with the eyes, which induces IgE mediated mast cell degranulation and allergic inflammation. The inflammatory mediators released by the mast cell result in inflammation and the infiltration of eosinophils, neutrophils and other immune cells. Eosinophils and mast cells are believed to be the main effector cells, with protease secretions directly damaging the conjunctiva, and play a key role in triggering and maintaining the inflammatory response. Symptoms include itching, hyperemia, light sensitivity (photophobia), pain, eye discharge and the sensation of having a foreign body in the eye. These symptoms can affect quality of life and daily activities, such as reading, driving and being in bright outdoor environments. In addition, patients with untreated disease, in particular those with VKC and AKC, can experience remodeling of the ocular surface tissues that can lead to vision loss. In addition to the primary symptoms of allergic conjunctivitis, a high correlation of allergic rhinitis, allergic asthma and atopic dermatitis comorbidities occur in this patient population. We believe that approximately 50,000-150,000 patients in the United States suffer from severe AKC, VKC or PAC and could be candidates for treatment with AK002.

Current Therapies and Limitations

PAC is treated with topical antihistamines and mast cell stabilizers. More serious forms are treated with topical and systemic corticosteroids, cyclosporine and other immunomodulatory drugs. There are no drugs approved for AKC and VKC, and as a result, patients are typically treated similarly to patients with PAC. Unfortunately, many patients continue to have symptoms despite these topical and/or systemic treatments and many of the drugs are not suitable for long-term treatment due to undesirable side effects.

Development Plan

We are conducting an open-label Phase 1 trial with AK002 in patients with SAC. The trial is enrolling patients with three different forms of allergic conjunctivitis: AKC, VKC and PAC. Approximately 30 patients are planned to be enrolled and will receive six monthly doses of AK002. The primary endpoint of the trial will be safety and tolerability. Key secondary endpoints include symptom measures of ocular itch, pain, lacrimation, photophobia and foreign body sensation. We expect to report data from this trial in the first quarter of 2019.

Figure 11. SAC Phase 1 Trial Design

Design		Key Endpoints
• **Open-label trial** • **30 patients – 3 cohorts** — **Atopic keratoconjunctivitis** — **Vernal keratoconjunctivitis** — **Perennial allergic conjunctivitis** • **Multiple doses (x6)** • **0.3 mg/kg, then 1.0 mg/kg**	**Primary**	• Safety and tolerability
	Secondary	• Patient reported outcomes: ocular itch, pain, lacrimation, photophobia, foreign body sensation • Assessment of comorbid atopic dermatitis, asthma and/or rhinitis

Preclinical Results

AK002 Results in Animal Disease Models Suggest Broad Activity

Because Siglec-8 is found only in cells of humans and certain other primates, we have developed a proprietary Siglec-8 transgenic mouse, in which Siglec-8 is expressed with a similar tissue

distribution to humans and is functionally active. The transgenic mouse provides us with a proprietary tool to assess the safety, tolerability and activity of anti-Siglec-8 antibodies.

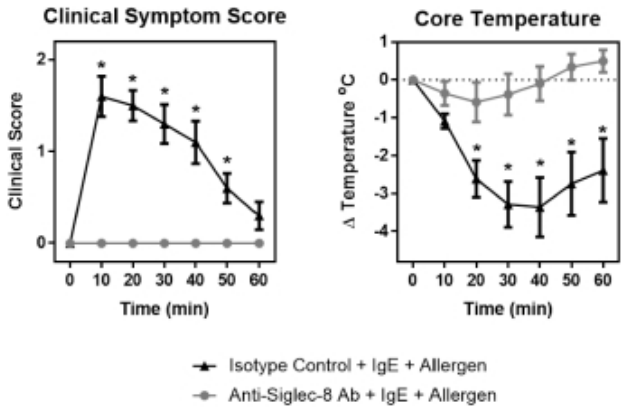
AK002 has completed short- and long-term toxicity studies in Siglec-8 transgenic mice. Chronic weekly dosing for six months with AK002 in transgenic mice at dose levels of 50 or 100 mg/kg resulted in no adverse AK002-related findings in mortality, clinical observations, body weight, food consumption and anatomic pathology after the end of dosing. Non-adverse findings included decreases in eosinophil counts in both sexes at ³50 mg/kg/week, which persisted through the recovery period. These findings reflect the expected pharmacology of AK002. The no-observed-adverse-effect-level of AK002 after chronic dosing for six months was 100 mg/kg/week.

We have shown that AK002 or antibodies to Siglec-8 have broad activity in animal disease models (eosinophilic gastroenteritis, anaphylaxis, fibrosis and chronic obstructive pulmonary disease) and in human *ex vivo* diseased tissue (eosinophilic gastrointestinal disease, mastocytosis, atomic dermatitis and lung). In these models, anti-Siglec-8 antibodies have significantly reduced eosinophil and inhibited mast cells. The activity in these models suggests AK002 has the potential to treat eosinophil and mast cell inflammation in a number of disease settings and highlights AK002's ability to inhibit the inflammatory cascade triggered by different activating signals.

Anti-Siglec-8 Antibody Inhibits IgE Mediated Systemic Anaphylaxis in Mouse Model

The ability of an anti-Siglec-8 antibody to inhibit IgE-mediated mast cell activation was demonstrated in a mouse model of systemic anaphylaxis. Anaphylaxis occurs due to IgE-mediated release of inflammatory mediators and cytokines from mast cells, which results in vasodilation, a reduction in core body temperature, itchiness and bronchoconstriction, among other symptoms. In this model, "humanized" mice engrafted with human immune cells were pretreated with an anti-Siglec-8 antibody or an isotype control antibody, administered an allergen-specific IgE, and 24 hours later, anaphylaxis was triggered using an allergen. Mice treated with the isotype control antibody plus IgE and allergen displayed symptoms of anaphylaxis and body temperature decreases that peaked 10 to 40 minutes after inducing anaphylaxis. In contrast, mice treated with the anti-Siglec-8 antibody plus IgE and allergen displayed no observable symptoms and had no significant changes in core body temperature.

Figure 12. Effects of Anti-Siglec-8 in a Mouse Model of Systemic Anaphylaxis

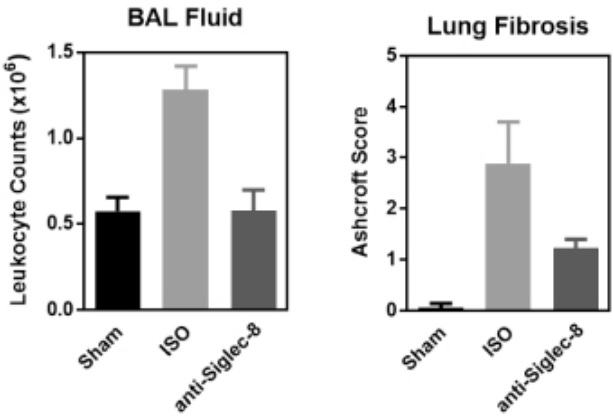


Anti-Siglec-8 Antibody Decreases Bleomycin Induced Lung Fibrosis in Mouse Model

Lung fibrosis induced by bleomycin is believed to be due to the increased expression of IL-33. IL-33 induces mast cells to release mediators that activate fibroblasts leading to fibrosis and collagen

deposition. In this model, lung fibrosis was induced by administering bleomycin to Siglec-8 transgenic mice every other day for 30 days. On days 14, 21 and 28, an anti-Siglec-8 or isotype control antibody was administered. Fibrosis was assessed on day 30 for anti-Siglec-8 or isotype control antibody treated mice and compared to sham treated mice (mice that did not receive bleomycin). Relative to control antibody mice, mice treated with an anti-Siglec-8 antibody displayed minimal fibrotic changes. In addition, the bronchoalveolar lavage ("BAL") of anti-Siglec-8 treated mice displayed reduced levels of infiltrating leukocytes that were similar to sham treated animals.

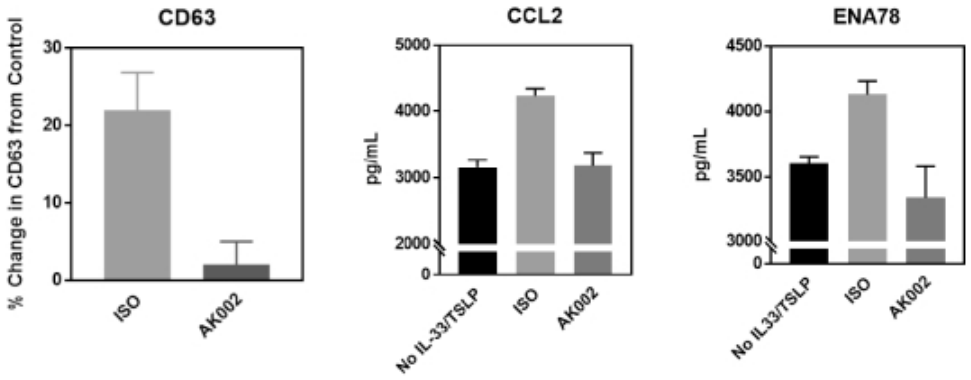
Figure 13. Leukocyte Counts and Lung Fibrosis in Bleomycin Lung Fibrosis Model



Anti-Siglec-8 Antibody Inhibits IL-33/TSLP Activation of Mast Cells from Human Skin

IL-33 combined with TSLP is a potent activator of mast cells and results in increased expression of the mast cell activation marker CD63. Mast cells isolated from skin showed a 20% increase in the expression of CD63 after overnight exposure to IL-33 and TSLP. In contrast, skin mast cells treated with AK002 along with IL-33 and TSLP did not show increased activation, with CD63 levels remaining similar to control levels (no IL-33 and TSLP exposure). In addition, the levels of chemokines CCL2 and ENA78 did not increase after stimulation with IL-33 and TSLP in the presence of AK002. Chemokines are known to recruit and activate cells of the innate and adaptive immune system. By normalizing chemokine secretions, AK002 may be able to prevent further recruitment of immune cells and thereby interrupt the inflammatory cascade.

Figure 14. *Ex Vivo* Skin Tissue Response to IL33/TSLP



AK001

We initially began developing two product candidates, AK001 and AK002, both of which are monoclonal antibodies targeting Siglec-8. These compounds entered clinical development in 2015 and 2016, respectively. Due to the greater activity of AK002, we decided to focus our development efforts on AK002 and discontinued the development of AK001 in 2017. We have no current plans to continue development of AK001, but may choose to do so in the future.

Preclinical Programs

We are developing two additional antibodies targeting novel immune system receptors for the treatment of cancer. These antibodies are being assessed in a variety of animal models.

Competition

The biotechnology and pharmaceutical industries are characterized by rapid technological advancement, significant competition and an emphasis on intellectual property. We face potential competition from many different sources, including major and specialty pharmaceutical and biotechnology companies, academic research institutions, governmental agencies and public and private research institutions. Any product candidates that we successfully develop and commercialize will compete with current therapies and new therapies that may become available in the future. We believe that the key competitive factors affecting the success of any of our product candidates will include efficacy, safety profile, convenience, cost, level of promotional activity devoted to them and intellectual property protection.

We are not aware of any other company or organization that is conducting clinical trials of a product candidate that targets both eosinophils and mast cells, including any product candidate that specifically targets Siglec-8. The competition we may face with respect to each of the indications we are targeting with AK002 includes:

- *EG and EGE*: Currently, there are no therapies that have been approved by the FDA specifically for EG or EGE, and we are not aware of any other planned pivotal trials in EG or EGE.
- *ISM*: We are not aware of any FDA-approved treatment options that target the underlying causes of ISM. Blueprint Medicines has announced it plans to begin a trial evaluating avapritinib in ISM in the second half of 2018.

- *CU*: Xolair is a FDA-approved drug approved for the treatment of CSU. We are not aware of any FDA-approved treatment options for cholinergic urticaria or symptomatic dermatographism. Novartis Pharmaceuticals is currently testing ligelizumab in a Phase 2 trial for chronic spontaneous urticaria.
- *SAC*: The products that are currently available for treatment of SAC only provide temporary relief for most patients and have little effect on moderate to severe cases. We are not aware of any other company specifically targeting SAC.

Many of the companies against which we may compete have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved products than we do. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

Sales and Marketing

In light of our stage of development, we currently have limited marketing and sales capabilities. We hold worldwide commercialization rights to all of our product candidates. We intend to retain the rights to our compounds in key markets, and plan to build our own focused, specialty sales force to commercialize approved products in both the United States and Europe.

Manufacturing

We must manufacture drug product for clinical trial use in compliance with cGMP regulations. The cGMP regulations include requirements relating to organization of personnel, buildings and facilities, equipment, control of components and drug product containers and closures, production and process controls, packaging and labeling controls, holding and distribution, laboratory controls, records and reports and returned or salvaged products. The manufacturing facilities for our product candidates must meet cGMP requirements and FDA or comparable foreign regulatory authority's satisfaction before any product is approved and our commercial products can be manufactured. Our third-party manufacturers will also be subject to periodic inspections of facilities by the FDA and other foreign authorities, including procedures and operations used in the testing and manufacture of our products to assess our compliance with applicable regulations.

We do not currently have the infrastructure or internal capability to manufacture our product candidates for use in clinical development and commercialization. We rely, and expect to continue to rely, on third-party manufacturers for the production of our product candidates in compliance with cGMP requirements clinical trials under the guidance of members of our organization. In the case of AK002, we rely on a single third-party manufacturer, Lonza, and we currently have no alternative manufacturer in place. We do not have long-term supply agreements and we purchase our required drug product on a purchase order basis. We expect to continue to rely on third-party manufacturers for the commercial supply of any of our product candidates for which we obtain marketing approval. We have personnel with significant technical, manufacturing, analytical, quality, regulatory, including cGMP, and project management experience to oversee our third-party manufacturers and to manage manufacturing and quality data and information for regulatory compliance purposes.

Failure to comply with statutory and regulatory requirements subjects a manufacturer to possible legal or regulatory action, including warning letters, the seizure or recall of products, injunctions,

consent decrees placing significant restrictions on or suspending manufacturing operations and civil and criminal penalties. Contract manufacturers often encounter difficulties involving production yields, quality control and quality assurance, as well as shortages of qualified personnel. Any of these actions or events could have a material impact on the availability of our products.

In-Licensing Agreements

Exclusive License Agreement with The Johns Hopkins University

We have exclusively licensed intellectual property from The Johns Hopkins University ("JHU") in a license agreement dated December 20, 2013 and amended and restated September 30, 2016. In December 2013, we entered into an agreement with JHU for an exclusive worldwide license to develop and commercialize for the treatment and prevention of disease products covered by the JHU licensed patent rights or derived from materials provided by JHU. In September 2016, we and JHU amended and restated the license agreement to an exclusive worldwide license to develop and commercialize in all fields products covered by the licensed patent rights, or derived from materials provided by JHU.

Under the license agreement we are obligated to make payments to JHU for therapeutic products aggregating up to $4.0 million based on achieving specified development and regulatory approval milestones. We will also pay market rate royalties to JHU based on net sales of each licensed therapeutic product by us and our affiliates and sublicensees and have up to a low six digit dollar minimum annual royalty payment. In addition, in the event we sublicense the JHU intellectual property, we are obligated to pay JHU a specified portion of income we receive from sublicensing.

Our royalty obligation with respect to each licensed product in a country extends until the later of the expiration of the last-to-expire patent licensed from JHU covering the licensed product in the country or the expiration of a specified number of years after the first commercial sale of any licensed product in any country.

Non-Exclusive License Agreement with BioWa Inc. and Lonza Sales AG

We have licensed on a non-exclusive basis intellectual property from BioWa Inc. ("BioWa") and Lonza pursuant to a license agreement dated October 31, 2013. The agreement grants Allakos a non-exclusive worldwide license to develop and commercialize certain products manufactured in a particular mammalian host cell line for the prevention, diagnosis or treatment of human disease.

Under the license agreement, we are obligated to pay BioWa an annual commercial license fee of $40,000 until such time as BioWa receives royalty payments. We may also become obligated to make payments to BioWa aggregating up to $41.3 million based on achieving specified milestones, and to pay low single-digit royalties to BioWa based on net sales of licensed product by us and our affiliates and sublicensees. Our royalty obligation to BioWa with respect to each licensed product in a country extends until the later of the expiration of the last-to-expire licensed patent covering the licensed product in the country or the expiration of either regulatory exclusivity or a specified number of years after the first commercial sale of the licensed product in the country, whichever is later.

We may also pay low single-digit royalties to Lonza based on net sales of each licensed product by us and our affiliates and sublicensees. We will be required to pay an annual license fees to Lonza if we (or our strategic partner) manufactures a particular product using the particular cell line, or if we utilize a third party CMO to manufacture a product using such system. Our royalty obligation to Lonza with respect to each licensed product in a country extends until the later of the expiration of the last-to-expire licensed patent covering the licensed product in the country or a specified number of years after the first commercial sale of the licensed product in the country, whichever is later.

Government Regulation

Government authorities in the United States at the federal, state and local level and in other countries regulate, among other things, the research, development, testing, manufacture, quality control, approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, post-approval monitoring and reporting, marketing and export and import of drug and biological products. Generally, before a new drug or biologic can be marketed, considerable data demonstrating its quality, safety and efficacy must be obtained, organized into a format specific for each regulatory authority, submitted for review and approved by the regulatory authority.

U.S. Drug Development

In the United States, the FDA regulates drugs under the Federal Food, Drug, and Cosmetic Act ("FDCA") and its implementing regulations, and biologics under the FDCA, the Public Health Service Act ("PHSA") and their implementing regulations. Both drugs and biologics also are subject to other federal, state and local statutes and regulations. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations requires the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or post-market may subject an applicant to administrative or judicial sanctions. These sanctions could include, among other actions, the FDA's refusal to approve pending applications, withdrawal of an approval, a clinical hold, untitled or warning letters, product recalls or market withdrawals, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement and civil or criminal penalties. Any agency or judicial enforcement action could have a material adverse effect on us.

Any future product candidates must be approved by the FDA through either a BLA or NDA process before they may be legally marketed in the United States. The process generally involves the following:

- Completion of extensive preclinical studies in accordance with applicable regulations, including studies conducted in accordance with good laboratory practice ("GLP"), requirements;
- Submission to the FDA of an IND, which must become effective before human clinical trials may begin;
- Approval by an independent institutional review board ("IRB"), or ethics committee at each clinical trial site before each trial may be initiated;
- Performance of adequate and well-controlled human clinical trials in accordance with applicable IND regulations, good clinical practice ("GCP"), requirements and other clinical trial-related regulations to establish the safety and efficacy of the investigational product for each proposed indication;
- Submission to the FDA of an NDA or BLA;
- A determination by the FDA within 60 days of its receipt of an NDA or BLA to accept the filing for review;
- Satisfactory completion of a FDA pre-approval inspection of the manufacturing facility or facilities where the drug or biologic will be produced to assess compliance with current good manufacturing practices ("cGMP"), requirements to assure that the facilities, methods and controls are adequate to preserve the drug or biologic's identity, strength, quality and purity;
- Potential FDA audit of the preclinical and/or clinical trial sites that generated the data in support of the NDA or BLA;

- FDA review and approval of the NDA or BLA, including consideration of the views of any FDA advisory committee, prior to any commercial marketing or sale of the drug or biologic in the United States; and
- Compliance with any post-approval requirements, including the potential requirement to implement a Risk Evaluation and Mitigation Strategy ("REMS"), and the potential requirement to conduct post-approval studies.

The data required to support an NDA or BLA are generated in two distinct developmental stages: preclinical and clinical. The preclinical and clinical testing and approval process requires substantial time, effort and financial resources, and we cannot be certain that any approvals for any future product candidates will be granted on a timely basis, or at all.

Preclinical Studies and IND

The preclinical developmental stage generally involves laboratory evaluations of drug chemistry, formulation and stability, as well as studies to evaluate toxicity in animals, which support subsequent clinical testing. The sponsor must submit the results of the preclinical studies, together with manufacturing information, analytical data, any available clinical data or literature and a proposed clinical protocol, to the FDA as part of the IND. An IND is a request for authorization from the FDA to administer an investigational product to humans, and must become effective before human clinical trials may begin.

Preclinical studies include laboratory evaluation of product chemistry and formulation, as well as *in vitro* and animal studies to assess the potential for adverse events and in some cases to establish a rationale for therapeutic use. The conduct of preclinical studies is subject to federal regulations and requirements, including GLP regulations for safety/toxicology studies. An IND sponsor must submit the results of the preclinical tests, together with manufacturing information, analytical data, any available clinical data or literature and plans for clinical studies, among other things, to the FDA as part of an IND. Some long-term preclinical testing, such as animal tests of reproductive adverse events and carcinogenicity, may continue after the IND is submitted. An IND automatically becomes effective 30 days after receipt by the FDA, unless before that time, the FDA raises concerns or questions related to one or more proposed clinical trials and places the trial on clinical hold. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. As a result, submission of an IND may not result in the FDA allowing clinical trials to commence.

Clinical Trials

The clinical stage of development involves the administration of the investigational product to healthy volunteers or patients under the supervision of qualified investigators, generally physicians not employed by or under the trial sponsor's control, in accordance with GCP requirements, which include the requirement that all research subjects provide their informed consent for their participation in any clinical trial. Clinical trials are conducted under protocols detailing, among other things, the objectives of the clinical trial, dosing procedures, subject selection and exclusion criteria and the parameters to be used to monitor subject safety and assess efficacy. Each protocol, and any subsequent amendments to the protocol, must be submitted to the FDA as part of the IND. Furthermore, each clinical trial must be reviewed and approved by an IRB for each institution at which the clinical trial will be conducted to ensure that the risks to individuals participating in the clinical trials are minimized and are reasonable in relation to anticipated benefits. The IRB also approves the informed consent form that must be provided to each clinical trial subject or his or her legal representative, and must monitor the clinical trial until completed. There also are requirements governing the reporting of ongoing clinical trials and completed clinical trial results to public registries.

A sponsor who wishes to conduct a clinical trial outside of the United States may, but need not, obtain FDA authorization to conduct the clinical trial under an IND. If a foreign clinical trial is not conducted under an IND, the sponsor may submit data from the clinical trial to the FDA in support of an NDA or BLA. The FDA will accept a well-designed and well-conducted foreign clinical trial not conducted under an IND if the trial was conducted in accordance with GCP requirements and the FDA is able to validate the data through an onsite inspection if deemed necessary.

Clinical trials in the United States generally are conducted in three sequential phases, known as Phase 1, Phase 2 and Phase 3, and may overlap.

- Phase 1 clinical trials generally involve a small number of healthy volunteers or disease-affected patients who are initially exposed to a single dose and then multiple doses of the product candidate. The primary purpose of these clinical trials is to assess the metabolism, pharmacologic action, tolerability and safety of the drug.
- Phase 2 clinical trials involve studies in disease-affected patients to determine the dose required to produce the desired benefits. At the same time, safety and further PK and PD information is collected, possible adverse effects and safety risks are identified and a preliminary evaluation of efficacy is conducted.
- Phase 3 clinical trials generally involve a large number of patients at multiple sites and are designed to provide the data necessary to demonstrate the effectiveness of the product for its intended use, its safety in use and to establish the overall benefit/risk relationship of the product and provide an adequate basis for product approval. These trials may include comparisons with placebo and/or other comparator treatments. The duration of treatment is often extended to mimic the actual use of a product during marketing.

Post-approval trials, sometimes referred to as Phase 4 clinical trials, may be conducted after initial marketing approval. These trials are used to gain additional experience from the treatment of patients in the intended therapeutic indication. In certain instances, the FDA may mandate the performance of Phase 4 clinical trials as a condition of approval of an NDA or BLA.

Progress reports detailing the results of the clinical trials, among other information, must be submitted at least annually to the FDA and written IND safety reports must be submitted to the FDA and the investigators for serious and unexpected suspected adverse events, findings from other studies suggesting a significant risk to humans exposed to the drug or biologic, findings from animal or *in vitro* testing that suggest a significant risk for human subjects and any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator brochure.

Phase 1, Phase 2 and Phase 3 clinical trials may not be completed successfully within any specified period, if at all. The FDA or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the drug or biologic has been associated with unexpected serious harm to patients. Additionally, some clinical trials are overseen by an independent group of qualified experts organized by the clinical trial sponsor, known as a data safety monitoring board or committee. This group provides authorization for whether a trial may move forward at designated check points based on access to certain data from the trial. Concurrent with clinical trials, companies usually complete additional animal studies and also must develop additional information about the chemistry and physical characteristics of the drug or biologic as well as finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently

producing quality batches of the product and, among other things, companies must develop methods for testing the identity, strength, quality and purity of the final product. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that our product candidates do not undergo unacceptable deterioration over their shelf life.

NDA/BLA Review Process

Following completion of the clinical trials, data are analyzed to assess whether the investigational product is safe and effective for the proposed indicated use or uses. The results of preclinical studies and clinical trials are then submitted to the FDA as part of an NDA or BLA, along with proposed labeling, chemistry and manufacturing information to ensure product quality and other relevant data. In short, the NDA or BLA is a request for approval to market the drug or biologic for one or more specified indications and must contain proof of safety and efficacy for a drug or safety, purity and potency for a biologic. The application may include both negative and ambiguous results of preclinical studies and clinical trials, as well as positive findings. Data may come from company-sponsored clinical trials intended to test the safety and efficacy of a product's use or from a number of alternative sources, including studies initiated by investigators. To support marketing approval, the data submitted must be sufficient in quality and quantity to establish the safety and efficacy of the investigational product to the satisfaction of FDA. FDA approval of an NDA or BLA must be obtained before a drug or biologic may be marketed in the United States.

Under the Prescription Drug User Fee Act ("PDUFA"), as amended, each NDA or BLA must be accompanied by a user fee. FDA adjusts the PDUFA user fees on an annual basis. According to the FDA's fee schedule, effective through September 30, 2016, the user fee for an application requiring clinical data, such as an NDA or BLA, is $2.3 million. PDUFA also imposes an annual product fee for human drugs and biologics (approximately $97,750) and an annual establishment fee (approximately $580,000) on facilities used to manufacture prescription drugs and biologics. Fee waivers or reductions are available in certain circumstances, including a waiver of the application fee for the first application filed by a small business. Additionally, no user fees are assessed on NDAs or BLAs for products designated as orphan drugs, unless the product also includes a non-orphan indication.

The FDA reviews all submitted NDAs and BLAs before it accepts them for filing, and may request additional information rather than accepting the NDA or BLA for filing. The FDA must make a decision on accepting an NDA or BLA for filing within 60 days of receipt. Once the submission is accepted for filing, the FDA begins an in-depth review of the NDA or BLA. Under the goals and policies agreed to by the FDA under PDUFA, the FDA has ten months, from the filing date, in which to complete its initial review of a new molecular-entity NDA or original BLA and respond to the applicant, and six months from the filing date of a new molecular-entity NDA or original BLA designated for priority review. The FDA does not always meet its PDUFA goal dates for standard and priority NDAs or BLAs, and the review process is often extended by FDA requests for additional information or clarification.

Before approving an NDA or BLA, the FDA will conduct a pre-approval inspection of the manufacturing facilities for the new product to determine whether they comply with cGMP requirements. The FDA will not approve the product unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. The FDA also may audit data from clinical trials to ensure compliance with GCP requirements. Additionally, the FDA may refer applications for novel drug products or drug products which present difficult questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation and a recommendation as to whether the application should be approved and under what conditions, if any. The FDA is not bound by recommendations of an advisory committee, but it considers such recommendations when making decisions on approval. The FDA likely will reanalyze the clinical trial

data, which could result in extensive discussions between the FDA and the applicant during the review process. After the FDA evaluates an NDA or BLA, it will issue an approval letter or a Complete Response Letter. An approval letter authorizes commercial marketing of the drug with specific prescribing information for specific indications. A Complete Response Letter indicates that the review cycle of the application is complete and the application will not be approved in its present form. A Complete Response Letter usually describes all of the specific deficiencies in the NDA or BLA identified by the FDA. The Complete Response Letter may require additional clinical data, additional pivotal Phase 3 clinical trial(s) and/or other significant and time-consuming requirements related to clinical trials, preclinical studies or manufacturing. If a Complete Response Letter is issued, the applicant may either resubmit the NDA or BLA, addressing all of the deficiencies identified in the letter, or withdraw the application. Even if such data and information are submitted, the FDA may decide that the NDA or BLA does not satisfy the criteria for approval. Data obtained from clinical trials are not always conclusive and the FDA may interpret data differently than we interpret the same data.

Orphan Drugs

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biological product intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the United States, or more than 200,000 individuals in the United States and for which there is no reasonable expectation that the cost of developing and making the product available in the United States for this type of disease or condition will be recovered from sales of the product.

Orphan drug designation must be requested before submitting an NDA or BLA. After the FDA grants orphan drug designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. Orphan drug designation does not convey any advantage in or shorten the duration of the regulatory review and approval process.

If a product that has orphan designation subsequently receives the first FDA approval for the disease or condition for which it has such designation, the product is entitled to orphan drug exclusivity, which means that the FDA may not approve any other applications to market the same drug for the same indication for seven years from the date of such approval, except in limited circumstances, such as a showing of clinical superiority to the product with orphan exclusivity by means of greater effectiveness, greater safety or providing a major contribution to patient care or in instances of drug supply issues. Competitors, however, may receive approval of either a different product for the same indication or the same product for a different indication but that could be used off-label in the orphan indication. Orphan drug exclusivity also could block the approval of one of our products for seven years if a competitor obtains approval before we do for the same product, as defined by the FDA, for the same indication we are seeking approval, or if a product candidate is determined to be contained within the scope of the competitor’s product for the same indication or disease. If one of our products designated as an orphan drug receives marketing approval for an indication broader than that which is designated, it may not be entitled to orphan drug exclusivity. Orphan drug status in the European Union has similar, but not identical, requirements and benefits.

Expedited Development and Review Programs

The FDA has a fast track program that is intended to expedite or facilitate the process for reviewing new drugs and biologics that meet certain criteria. Specifically, new drugs and biologics are eligible for fast track designation if they are intended to treat a serious or life threatening condition and preclinical or clinical data demonstrate the potential to address unmet medical needs for the condition. Fast track designation applies to both the product and the specific indication for which it is being studied. The sponsor can request the FDA to designate the product for fast track status any time before receiving NDA or BLA approval, but ideally no later than the pre-NDA or pre-BLA meeting.

Any product submitted to the FDA for marketing, including under a fast track program, may be eligible for other types of FDA programs intended to expedite development and review, such as priority review and accelerated approval. Any product is eligible for priority review if it treats a serious or life-threatening condition and, if approved, would provide a significant improvement in safety and effectiveness compared to available therapies.

A product may also be eligible for accelerated approval, if it treats a serious or life-threatening condition and generally provides a meaningful advantage over available therapies. In addition, it must demonstrate an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality ("IMM"), which is reasonably likely to predict an effect on IMM or other clinical benefit. As a condition of approval, the FDA may require that a sponsor of a drug or biologic receiving accelerated approval perform adequate and well-controlled post-marketing clinical trials. If the FDA concludes that a drug or biologic shown to be effective can be safely used only if distribution or use is restricted, it may require such post-marketing restrictions, as it deems necessary to assure safe use of the product.

Additionally, a drug or biologic may be eligible for designation as a breakthrough therapy if the product is intended, alone or in combination with one or more other drugs or biologics, to treat a serious or life-threatening condition and preliminary clinical evidence indicates that the product may demonstrate substantial improvement over currently approved therapies on one or more clinically significant endpoints. The benefits of breakthrough therapy designation include the same benefits as fast track designation, plus intensive guidance from the FDA to ensure an efficient drug development program. Fast track designation, priority review, accelerated approval and breakthrough therapy designation do not change the standards for approval, but may expedite the development or approval process.

Abbreviated Licensure Pathway of Biological Products as Biosimilar or Interchangeable

The Patient Protection and Affordable Care Act ("PPACA"), or Affordable Care Act ("ACA"), signed into law in 2010, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009 ("BPCIA"), created an abbreviated approval pathway for biological products shown to be highly similar to an FDA-licensed reference biological product. The BPCIA attempts to minimize duplicative testing, and thereby lower development costs and increase patient access to affordable treatments. An application for licensure of a biosimilar product must include information demonstrating biosimilarity based upon the following, unless the FDA determines otherwise:

- analytical studies demonstrating that the proposed biosimilar product is highly similar to the approved product notwithstanding minor differences in clinically inactive components;
- animal studies (including the assessment of toxicity); and
- a clinical trial or trials (including the assessment of immunogenicity and PK or PD) sufficient to demonstrate safety, purity and potency in one or more conditions for which the reference product is licensed and intended to be used.

In addition, an application must include information demonstrating that:

- the proposed biosimilar product and reference product utilize the same mechanism of action for the condition(s) of use prescribed, recommended or suggested in the proposed labeling, but only to the extent the mechanism(s) of action are known for the reference product;
- the condition or conditions of use prescribed, recommended or suggested in the labeling for the proposed biosimilar product have been previously approved for the reference product;

- the route of administration, the dosage form and the strength of the proposed biosimilar product are the same as those for the reference product; and
- the facility in which the biological product is manufactured, processed, packed or held meets standards designed to assure that the biological product continues to be safe, pure and potent.

Biosimilarity means that the biological product is highly similar to the reference product notwithstanding minor differences in clinically inactive components; and that there are no clinically meaningful differences between the biological product and the reference product in terms of the safety, purity and potency of the product. In addition, the law provides for a designation of “interchangeability” between the reference and biosimilar products, whereby the biosimilar may be substituted for the reference product without the intervention of the health care provider who prescribed the reference product. The higher standard of interchangeability must be demonstrated by information sufficient to show that:

- the proposed product is biosimilar to the reference product;
- the proposed product is expected to produce the same clinical result as the reference product in any given patient; and
- for a product that is administered more than once to an individual, the risk to the patient in terms of safety or diminished efficacy of alternating or switching between the biosimilar and the reference product is no greater than the risk of using the reference product without such alternation or switch.

FDA approval is required before a biosimilar may be marketed in the United States. However, complexities associated with the large and intricate structures of biological products and the process by which such products are manufactured pose significant hurdles to the FDA’s implementation of the law that are still being worked out by the FDA. For example, the FDA has discretion over the kind and amount of scientific evidence—laboratory, preclinical and/or clinical—required to demonstrate biosimilarity to a licensed biological product.

The FDA intends to consider the totality of the evidence, provided by a sponsor to support a demonstration of biosimilarity, and recommends that sponsors use a stepwise approach in the development of their biosimilar products. Biosimilar product applications thus may not be required to duplicate the entirety of preclinical and clinical testing used to establish the underlying safety and effectiveness of the reference product. However, the FDA may refuse to approve a biosimilar application if there is insufficient information to show that the active ingredients are the same or to demonstrate that any impurities or differences in active ingredients do not affect the safety, purity or potency of the biosimilar product. In addition, as with BLAs, biosimilar product applications will not be approved unless the product is manufactured in facilities designed to assure and preserve the biological product’s safety, purity and potency.

The submission of a biosimilar application does not guarantee that the FDA will accept the application for filing and review, as the FDA may refuse to accept applications that it finds are insufficiently complete. The FDA will treat a biosimilar application or supplement as incomplete if, among other reasons, any applicable user fees assessed under the Biosimilar User Fee Act of 2012 have not been paid. In addition, the FDA may accept an application for filing but deny approval on the basis that the sponsor has not demonstrated biosimilarity, in which case the sponsor may choose to conduct further analytical, preclinical or clinical studies and submit a BLA for licensure as a new biological product.

The timing of final FDA approval of a biosimilar for commercial distribution depends on a variety of factors, including whether the manufacturer of the branded product is entitled to one or more statutory

exclusivity periods, during which time the FDA is prohibited from approving any products that are biosimilar to the branded product. The FDA cannot approve a biosimilar application for twelve years from the date of first licensure of the reference product. Additionally, a biosimilar product sponsor may not submit an application for four years from the date of first licensure of the reference product. A reference product may also be entitled to exclusivity under other statutory provisions. For example, a reference product designated for a rare disease or condition (an “orphan drug”) may be entitled to seven years of exclusivity, in which case no product that is biosimilar to the reference product may be approved until either the end of the twelve-year period provided under the biosimilarity statute or the end of the seven-year orphan drug exclusivity period, whichever occurs later. In certain circumstances, a regulatory exclusivity period can extend beyond the life of a patent, and thus block biosimilarity applications from being approved on or after the patent expiration date. In addition, the FDA may under certain circumstances extend the exclusivity period for the reference product by an additional six months if the FDA requests, and the manufacturer undertakes, studies on the effect of its product in children, a so-called pediatric extension.

The first biological product determined to be interchangeable with a branded product for any condition of use is also entitled to a period of exclusivity, during which time the FDA may not determine that another product is interchangeable with the reference product for any condition of use. This exclusivity period extends until the earlier of: (1) one year after the first commercial marketing of the first interchangeable product; (2) 18 months after resolution of a patent infringement against the applicant that submitted the application for the first interchangeable product, based on a final court decision regarding all of the patents in the litigation or dismissal of the litigation with or without prejudice; (3) 42 months after approval of the first interchangeable product, if a patent infringement suit against the applicant that submitted the application for the first interchangeable product is still ongoing or (4) 18 months after approval of the first interchangeable product if the applicant that submitted the application for the first interchangeable product has not been sued.

Post-Approval Requirements

Following approval of a new product, the manufacturer and the approved product are subject to continuing regulation by the FDA, including, among other things, monitoring and record-keeping requirements, requirements to report adverse experiences and comply with promotion and advertising requirements, which include restrictions on promoting drugs for unapproved uses or patient populations (known as “off-label use”) and limitations on industry-sponsored scientific and educational activities. Although physicians may prescribe legally available drugs for off-label uses, manufacturers may not market or promote such uses. Prescription drug promotional materials must be submitted to the FDA in conjunction with their first use. Further, if there are any modifications to the drug or biologic, including changes in indications, labeling or manufacturing processes or facilities, the applicant may be required to submit and obtain FDA approval of a new NDA/BLA or NDA/BLA supplement, which may require the development of additional data or preclinical studies and clinical trials.

The FDA may also place other conditions on approvals including the requirement for a Risk Evaluation and Mitigation Strategy (“REMS”), to assure the safe use of the product. A REMS could include medication guides, physician communication plans or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. Any of these limitations on approval or marketing could restrict the commercial promotion, distribution, prescription or dispensing of products. Product approvals may be withdrawn for non-compliance with regulatory standards or if problems occur following initial marketing.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or

with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical studies to assess new safety risks or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters or holds on post-approval clinical studies;
- refusal of the FDA to approve pending applications or supplements to approved applications;
- applications, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of products; or
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising and promotion of products that are placed on the market. Drugs and biologics may be promoted only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant liability.

Other U.S. Regulatory Matters

Manufacturing, sales, promotion and other activities following product approval are also subject to regulation by numerous regulatory authorities in the United States in addition to the FDA, including the Centers for Medicare & Medicaid Services, other divisions of the Department of Health and Human Services, the Department of Justice, the Drug Enforcement Administration, the Consumer Product Safety Commission, the Federal Trade Commission, the Occupational Safety & Health Administration, the Environmental Protection Agency and state and local governments.

For example, in the United States, sales, marketing and scientific and educational programs also must comply with state and federal fraud and abuse laws. These laws include the federal Anti-Kickback Statute, which makes it illegal for any person, including a prescription drug manufacturer (or a party acting on its behalf), to knowingly and willfully solicit, receive, offer or pay any remuneration that is intended to induce or reward referrals, including the purchase, recommendation, order or prescription of a particular drug, for which payment may be made under a federal healthcare program, such as Medicare or Medicaid. Violations of this law are punishable by up to five years in prison, criminal fines, administrative civil money penalties and exclusion from participation in federal healthcare programs. Moreover, the ACA provides 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 False Claims Act.

Pricing and rebate programs must comply with the Medicaid rebate requirements of the U.S. Omnibus Budget Reconciliation Act of 1990 and more recent requirements in the ACA. If products are made available to authorized users of the Federal Supply Schedule of the General Services Administration, additional laws and requirements apply. Products must meet applicable child-resistant packaging requirements under the U.S. Poison Prevention Packaging Act. Manufacturing, sales, promotion and other activities also are potentially subject to federal and state consumer protection and unfair competition laws.

The distribution of biologic and pharmaceutical products is subject to additional requirements and regulations, including extensive record-keeping, licensing, storage and security requirements intended to prevent the unauthorized sale of pharmaceutical products.

The failure to comply with any of these laws or regulatory requirements subjects firms to possible legal or regulatory action. Depending on the circumstances, failure to meet applicable regulatory requirements can result in criminal prosecution, fines or other penalties, injunctions, requests for recall, seizure of products, total or partial suspension of production, denial or withdrawal of product approvals or refusal to allow a firm to enter into supply contracts, including government contracts. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. Prohibitions or restrictions on sales or withdrawal of future products marketed by us could materially affect our business in an adverse way.

Changes in regulations, statutes or the interpretation of existing regulations could impact our business in the future by requiring, for example: (i) changes to our manufacturing arrangements; (ii) additions or modifications to product labeling; (iii) the recall or discontinuation of our products; or (iv) additional record-keeping requirements. If any such changes were to be imposed, they could adversely affect the operation of our business.

U.S. Patent-Term Restoration and Marketing Exclusivity

Depending upon the timing, duration and specifics of FDA approval of any future product candidates, some of our U.S. patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984 (the "Hatch-Waxman Act"). The Hatch-Waxman Act permits restoration of the patent term of up to five years as compensation for patent term lost during product development and FDA regulatory review process. Patent-term restoration, however, cannot extend the remaining term of a patent beyond a total of 14 years from the product's approval date. The patent-term restoration period is generally one-half the time between the effective date of an IND and the submission date of an NDA or BLA plus the time between the submission date of an NDA or BLA and the approval of that application, except that the review period is reduced by any time during which the applicant failed to exercise due diligence. Only one patent applicable to an approved drug is eligible for the extension and the application for the extension must be submitted prior to the expiration of the patent. The U.S. PTO, in consultation with the FDA, reviews and approves the application for any patent term extension or restoration. In the future, we may apply for restoration of patent term for our currently owned or licensed patents to add patent life beyond its current expiration date, depending on the expected length of the clinical trials and other factors involved in the filing of the relevant NDA or BLA.

Market exclusivity provisions under the FDCA also can delay the submission or the approval of certain applications. The FDCA provides a five-year period of non-patent marketing exclusivity within the United States to the first applicant to gain approval of a NDA for a new chemical entity. A drug is a new chemical entity if the FDA has not previously approved any other new drug containing the same active moiety, which is the molecule or ion responsible for the action of the drug substance. During the exclusivity period, the FDA may not accept for review an abbreviated new drug application ("ANDA"), or a 505(b)(2) NDA submitted by another company for another version of such drug where the applicant does not own or have a legal right of reference to all the data required for approval. However, an application may be submitted after four years if it contains a certification of patent invalidity or non-infringement. The FDCA also provides three years of marketing exclusivity for a NDA, 505(b)(2) NDA or supplement to an existing NDA if new clinical investigations, other than bioavailability studies, that were conducted or sponsored by the applicant are deemed by the FDA to be essential to the approval of the application, for example, new indications, dosages or strengths of an existing drug. This three-year exclusivity covers only the conditions of use associated with the new clinical investigations and does not prohibit the FDA from approving ANDAs for drugs containing the original active agent. Five-year and three-year exclusivity will not delay the submission or approval of a full NDA. However, an applicant submitting a full NDA would be required to conduct or obtain a right of

reference to all of the preclinical studies and adequate and well-controlled clinical trials necessary to demonstrate safety and effectiveness.

A reference biological product is granted twelve years of data exclusivity from the time of first licensure of the product, and the FDA will not accept an application for a biosimilar or interchangeable product based on the reference biological product until four years after the date of first licensure of the reference product. “First licensure” typically means the initial date the particular product at issue was licensed in the United States. Date of first licensure does not include the date of licensure of (and a new period of exclusivity is not available for) a biological product if the licensure is for a supplement for the biological product or for a subsequent application by the same sponsor or manufacturer of the biological product (or licensor, predecessor in interest or other related entity) for a change (not including a modification to the structure of the biological product) that results in a new indication, route of administration, dosing schedule, dosage form, delivery system, delivery device or strength or for a modification to the structure of the biological product that does not result in a change in safety, purity or potency. Therefore, one must determine whether a new product includes a modification to the structure of a previously licensed product that results in a change in safety, purity or potency to assess whether the licensure of the new product is a first licensure that triggers its own period of exclusivity. Whether a subsequent application, if approved, warrants exclusivity as the “first licensure” of a biological product is determined on a case-by-case basis with data submitted by the sponsor.

European Union Drug Development

As in the United States, medicinal products can be marketed only if a marketing authorization from the competent regulatory agencies has been obtained.

Similar to the United States, the various phases of preclinical and clinical research in the European Union are subject to significant regulatory controls. Although the EU Clinical Trials Directive 2001/20/EC has sought to harmonize the EU clinical trials regulatory framework, setting out common rules for the control and authorization of clinical trials in the EU, the EU Member States have transposed and applied the provisions of the Directive differently. This has led to significant variations in the member state regimes. Under the current regime, before a clinical trial can be initiated it must be approved in each of the EU countries where the trial is to be conducted by two distinct bodies: the National Competent Authority (“NCA”), and one or more Ethics Committees (“ECs”). Under the current regime all suspected unexpected serious adverse reactions to the investigated drug that occur during the clinical trial have to be reported to the NCA and ECs of the Member State where they occurred.

The EU clinical trials legislation currently is undergoing a transition process mainly aimed at harmonizing and streamlining clinical-trial authorization, simplifying adverse-event reporting procedures, improving the supervision of clinical trials and increasing their transparency. Recently enacted Clinical Trials Regulation EU No 536/2014 ensures that the rules for conducting clinical trials in the EU will be identical. In the meantime, Clinical Trials Directive 2001/20/EC continues to govern all clinical trials performed in the EU.

European Union Drug Review and Approval

In the European Economic Area (“EEA”), which is comprised of the 27 Member States of the European Union (including Norway and excluding Croatia), Iceland and Liechtenstein, medicinal products can only be commercialized after obtaining a Marketing Authorization (“MA”). There are two types of marketing authorizations.

- The Community MA is issued by the European Commission through the Centralized Procedure, based on the opinion of the Committee for Medicinal Products for Human Use

("CHMP"), of the European Medicines Agency ("EMA"), and is valid throughout the entire territory of the EEA. The Centralized Procedure is mandatory for certain types of products, such as biotechnology medicinal products, orphan medicinal products, advanced-therapy medicines such as gene-therapy, somatic cell-therapy or tissue-engineered medicines and medicinal products containing a new active substance indicated for the treatment of HIV, AIDS, cancer, neurodegenerative disorders, diabetes, auto-immune and other immune dysfunctions and viral diseases. The Centralized Procedure is optional for products containing a new active substance not yet authorized in the EEA, or for products that constitute a significant therapeutic, scientific or technical innovation or which are in the interest of public health in the EU.

- National MAs, which are issued by the competent authorities of the Member States of the EEA and only cover their respective territory, are available for products not falling within the mandatory scope of the Centralized Procedure. Where a product has already been authorized for marketing in a Member State of the EEA, this National MA can be recognized in another Member States through the Mutual Recognition Procedure. If the product has not received a National MA in any Member State at the time of application, it can be approved simultaneously in various Member States through the Decentralized Procedure. Under the Decentralized Procedure an identical dossier is submitted to the competent authorities of each of the Member States in which the MA is sought, one of which is selected by the applicant as the Reference Member State ("RMS"). The competent authority of the RMS prepares a draft assessment report, a draft summary of the product characteristics ("SPC"), and a draft of the labeling and package leaflet, which are sent to the other Member States (referred to as the Member States Concerned) for their approval. If the Member States Concerned raise no objections, based on a potential serious risk to public health, to the assessment, SPC, labeling or packaging proposed by the RMS, the product is subsequently granted a national MA in all the Member States (i.e., in the RMS and the Member States Concerned).

Under the above described procedures, before granting the MA, the EMA or the competent authorities of the Member States of the EEA make an assessment of the risk-benefit balance of the product on the basis of scientific criteria concerning its quality, safety and efficacy.

Coverage and Reimbursement

Sales of our products will depend, in part, on the extent to which our products will be covered by third-party payors, such as government health programs, commercial insurance and managed healthcare organizations. In the United States no uniform policy of coverage and reimbursement for drug or biological products exists. Accordingly, decisions regarding the extent of coverage and amount of reimbursement to be provided for any of our products will be made on a payor-by-payor basis. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that coverage and adequate reimbursement will be obtained.

The United States government, state legislatures and foreign governments have shown significant interest in implementing cost containment programs to limit the growth of government-paid health care costs, including price-controls, restrictions on reimbursement and requirements for substitution of generic products for branded prescription drugs. For example, the ACA contains provisions that may reduce the profitability of drug products through increased rebates for drugs reimbursed by Medicaid programs, extension of Medicaid rebates to Medicaid managed care plans, mandatory discounts for certain Medicare Part D beneficiaries and annual fees based on pharmaceutical companies' share of sales to federal health care programs. Adoption of general controls and measures, coupled with the

tightening of restrictive policies in jurisdictions with existing controls and measures, could limit payments for pharmaceutical drugs.

The Medicaid Drug Rebate Program requires pharmaceutical manufacturers to enter into and have in effect a national rebate agreement with the Secretary of the Department of Health and Human Services as a condition for states to receive federal matching funds for the manufacturer's outpatient drugs furnished to Medicaid patients. The ACA made several changes to the Medicaid Drug Rebate Program, including increasing pharmaceutical manufacturers' rebate liability by raising the minimum basic Medicaid rebate on most branded prescription drugs from 15.1% of average manufacturer price ("AMP"), to 23.1% of AMP and adding a new rebate calculation for "line extensions" (i.e., new formulations, such as extended release formulations) of solid oral dosage forms of branded products, as well as potentially impacting their rebate liability by modifying the statutory definition of AMP. The ACA also expanded the universe of Medicaid utilization subject to drug rebates by requiring pharmaceutical manufacturers to pay rebates on Medicaid managed care utilization and by enlarging the population potentially eligible for Medicaid drug benefits. The Centers for Medicare & Medicaid Services ("CMS"), have proposed to expand Medicaid rebate liability to the territories of the United States as well.

The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 ("MMA"), established the Medicare Part D program to provide a voluntary prescription drug benefit to Medicare beneficiaries. Under Part D, Medicare beneficiaries may enroll in prescription drug plans offered by private entities that provide coverage of outpatient prescription drugs. Unlike Medicare Part A and B, Part D coverage is not standardized. While all Medicare drug plans must give at least a standard level of coverage set by Medicare, 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. However, Part D prescription drug formularies must include drugs within each therapeutic category and class of covered Part D drugs, though not necessarily all the drugs in each category or class. Any formulary used by a Part D prescription drug plan must be developed and reviewed by a pharmacy and therapeutic committee. Government payment for some of the costs of prescription drugs may increase demand for products for which we receive marketing approval. However, any negotiated prices for our products covered by a Part D prescription drug plan likely will be lower than the prices we might otherwise obtain. Moreover, while the MMA applies only to drug benefits for Medicare beneficiaries, private payors often follow Medicare coverage policy and payment limitations in setting their own payment rates. Any reduction in payment that results from the MMA may result in a similar reduction in payments from non-governmental payors.

For a drug product to receive federal reimbursement under the Medicaid or Medicare Part B programs or to be sold directly to U.S. government agencies, the manufacturer must extend discounts to entities eligible to participate in the 340B drug pricing program. The required 340B discount on a given product is calculated based on the AMP and Medicaid rebate amounts reported by the manufacturer. As of 2010, the ACA expanded the types of entities eligible to receive discounted 340B pricing, although, under the current state of the law, with the exception of children's hospitals, these newly eligible entities will not be eligible to receive discounted 340B pricing on orphan drugs. In addition, as 340B drug prices are determined based on AMP and Medicaid rebate data, the revisions to the Medicaid rebate formula and AMP definition described above could cause the required 340B discount to increase.

As noted above, the marketability of any products for which we receive regulatory approval for commercial sale may suffer if the government and third-party payors fail to provide adequate coverage and reimbursement. An increasing emphasis on cost containment measures in the United States has increased and we expect will continue to increase the pressure on pharmaceutical pricing. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and

reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

In addition, in most foreign countries, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing and reimbursement vary widely from country to country. For example, the European Union provides options for its member states to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. A member state may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any of our products. Historically, products launched in the European Union do not follow price structures of the United States and generally prices tend to be significantly lower.

Employees

As of December 31, 2017, we had 39 full-time employees, 30 of whom were engaged in research and development activities. None of our employees are represented by a labor union or covered under a collective bargaining agreement.

Facilities

Our corporate headquarters are currently located in San Carlos, California, where we lease 10,142 square feet of office, research and development and laboratory space pursuant to a lease agreement that expires in June 2019. In order to accommodate our anticipated growth in connection with our future development and commercialization efforts, we recently entered into a second lease for an additional 25,136 square feet of office, research and development and laboratory space in Redwood City, California. The term of this new lease agreement expires ten years and nine months from the date of substantial completion and delivery of the premises. We currently anticipate that we will begin occupying this new space beginning in August 2018. We believe that our existing facilities are adequate for our near-term needs. If required, we believe that suitable additional or alternative space would be available in the future on commercially reasonable terms.

Legal Proceedings

From time to time, we may become involved in litigation or other legal proceedings. We are not currently a party to any litigation or legal proceedings that, in the opinion of our management, are likely to have a material adverse effect on our business. Regardless of outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

Intellectual Property

Our success depends in part on our ability to obtain and maintain proprietary protection for our product candidates, technology and know-how, to operate without infringing the proprietary rights of others and to prevent others from infringing our proprietary rights. Our policy is to seek to protect our proprietary position by, among other methods, pursuing and obtaining patent protection in the United States and in jurisdictions outside of the United States related to our proprietary technology, inventions, improvements and product candidates that are important to the development and implementation of our business. Our patent portfolio is intended to cover our product candidates and components thereof, their methods of use and processes for their manufacture, our proprietary reagents and assays and

any other inventions that are commercially important to our business. We also rely on trade secret protection of our confidential information and know-how relating to our proprietary technology, platforms and product candidates.

We believe that we have substantial know-how and trade secrets relating to our technology and product candidates. Our patent portfolio as of March 31, 2018 contains seven U.S. issued patents and eight pending U.S. patent applications that are solely owned or exclusively licensed by us and numerous foreign counterparts of these patents and patent applications.

We have exclusively licensed from The Johns Hopkins University ("JHU") six issued U.S. patents and also foreign counterparts, with claims granted in Europe and Japan. The JHU licensed patent rights include issued U.S. patents with claims that recite anti-Siglec-8 antibodies comprising the CDRs of a particular antibody and methods of use a class of antibodies that bind to Siglec-8 for treating particular diseases. These patents are projected to expire in 2021. We own a granted U.S. patent that claims the active component of AK002 (an anti-Siglec-8 antibody) and pharmaceutical compositions comprising AK002 with a projected expiration date in 2035 in the absence of patent extensions. Similar patent applications are pending in Europe, Japan and elsewhere with a projected expiration date in 2034. We have six further pending families of patent applications that include U.S. and foreign applications relating to methods of treatment for treating particular diseases using antibodies to Siglec-8. We have also filed patent applications with claims pending relating to antibodies in preclinical development and methods for treating cancer with these antibodies. We also have a non-exclusive license to intellectual property from BioWa and Lonza regarding the expression and manufacturing of monoclonal antibodies in particular mammalian host cell lines.

The term of individual patents depends upon the legal term for patents in the countries in which they are granted. In most countries, including the United States, the patent term is generally 20 years from the earliest claimed filing date of a non-provisional patent application in the applicable country. In the United States, a patent's term may, in certain cases, be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the U.S. Patent and Trademark Office in examining and granting a patent, or may be shortened if a patent is terminally disclaimed over a commonly owned patent or a patent naming a common inventor and having an earlier expiration date. The Hatch-Waxman Act permits a patent term extension of up to five years beyond the expiration date of a U.S. patent as partial compensation for the length of time the drug is under regulatory review while the patent is in force. A patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent applicable to each regulatory review period may be extended and only those claims covering the approved drug, a method for using it or a method for manufacturing it may be extended.

Similar provisions are available in the European Union and certain other foreign jurisdictions to extend the term of a patent that covers an approved drug. In the future, if and when our product candidates, including AK002, receive approval by the FDA or foreign regulatory authorities, we expect to apply for patent term extensions on issued patents covering those products, depending upon the length of the clinical trials for each drug and other factors. Expiration dates referred to above are without regard to potential patent term adjustment or extension or other market exclusivity that may be available to us.

We also rely, in some circumstances, on trade secrets to protect our technology. However, trade secrets can be difficult to protect. We seek to protect our proprietary technology and processes, in part, by confidentiality agreements with our employees, consultants, scientific advisors and contractors. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems.

MANAGEMENT

Executive Officers and Directors

The following table sets forth the names, ages and positions of our executive officers and directors as of December 31, 2017:

Name	Age	Position
Executive Officers:		
Robert Alexander, Ph.D.	48	President, Chief Executive Officer and Director
Adam Tomasi, Ph.D.	47	Chief Operating Officer, Chief Financial Officer and Secretary
Henrik Rasmussen, M.D., Ph.D.	59	Chief Medical Officer
Non-Employee Directors:		
Daniel Janney	52	Chair of the Board
Steven P. James	60	Director
John McKearn, Ph.D.	64	Director
Paul Walker	43	Director

(1) Member of the audit committee
(2) Member of the compensation committee
(3) Member of the corporate governance and nominating committee

Executive Officers

Robert Alexander, Ph.D. has served as a member of our Board of Directors since May 2017, as our Chief Executive Officer since April 2017 and as our President since November 29, 2017. He previously served as a member of our Board of Directors from December 2012 until June 2013. From December 2013 to April 2017, Dr. Alexander served as Chief Executive Officer of ZS Pharma (acquired by AstraZeneca in December 2015), where he also served as a member of the board of directors, including as Chairman from March 2013 to March 2014. From November 2005 to March 2013, Dr. Alexander served as a Director at Alta Partners, a venture capital firm in life sciences. In addition, he acted as Executive Chairman and interim Chief Executive Officer of SARcode Biosciences (acquired by Shire plc in April 2013), a biopharmaceutical company. During his time at Alta, he led investments in SARcode Biosciences, Lumena Pharmaceuticals, ZS Pharma and Allakos. Previously, Dr. Alexander was a Principal in MPM Capital's BioEquities fund where he sourced opportunities and led due diligence efforts for both public and private investments. Dr. Alexander also previously worked in the Business Development group at Genentech (now a member of the Roche Group), a biotechnology company, where he was responsible for sourcing and screening product opportunities based on scientific merit and strategic fit, leading diligence teams and negotiating terms and definitive agreements. He is currently a director at Allena Pharmaceuticals. Dr. Alexander joined Genentech after completing his post-doctoral fellowship at Stanford University in the Pathology department. He also holds a Ph.D. with a focus in immunology from the University of North Carolina and a B.A. in zoology from Miami University of Ohio.

We believe Dr. Alexander is qualified to serve on our board of directors because of the perspective and experience he provides as our President and CEO, as well as his broad experience within the pharmaceutical industry, particularly in the area of immunology.

Adam Tomasi, Ph.D. has served as our Chief Operating Officer and Chief Financial Officer since April 2017 and as Secretary since November 2017. From August 2013 to January 2015, Dr. Tomasi served as Senior Vice President, Corporate Development of ZS Pharma, and from February 2015 to

March 2017, he served as Chief Scientific Officer and Head of Corporate Development of ZS Pharma. Previously, Dr. Tomasi was a Principal at Alta Partners, where he was involved in the funding and development of notable medical technology and life science companies including Chemgenex, Excaliard, Lumena Pharmaceuticals, Achaogen, Immune Design, Allakos and ZS Pharma. Prior to joining Alta Partners, Dr. Tomasi was in the Harvard-MIT Biomedical Enterprise Program where he completed internships as an equity analyst at Lehman Brothers and at MPM Capital. Dr. Tomasi also previously worked as a medicinal chemist with Gilead Sciences and Cytokinetics, where he helped create the cardiovascular drug CK-1827452, which was licensed to Amgen. Dr. Tomasi holds a B.S. in Chemistry from the University of California, Berkeley, an MBA from the Massachusetts Institute of Technology Sloan School of Management and a Ph.D. in Chemistry from the University of California, Irvine.

Henrik Rasmussen, *M.D., Ph.D.* has served as our Chief Medical Officer since June 2017. From October 2012 through June 2016, Dr. Rasmussen served as Chief Medical Officer at ZS Pharma, a biotechnology company. From August 2009 to October 2012 and from June 2015 to June 2017, Dr. Rasmussen served as President and Chief Executive Officer of Rasmussen Biotech and Pharma Consulting. Dr. Rasmussen also previously held the positions of Corporate Vice President and Head of Clinical Development and Medical and Regulatory Affairs at Novo Nordisk. He also previously served as Chief Medical Officer for Nabi Biopharmaceuticals and Genvec. He was also previously Vice President for Clinical Research and Senior Vice President for Clinical Research and Regulatory Affairs at British Biotech and International Clinical Project Manager and Global Study Director for cardiovascular drug development at Pfizer Central Research. Dr. Rasmussen has led numerous global development programs and regulatory filings worldwide, including NDAs. Dr. Rasmussen received his M.D. and Ph.D. from the University of Copenhagen in Denmark and is trained in internal medicine and cardiology.

Non-Employee Directors

Daniel Janney has served as a member of our board of directors since March 2017 and as Chair of our board of directors since June 2017. Mr. Janney is a managing director at Alta Partners, a life sciences venture capital firm, which he joined in 1996. Prior to joining Alta, from 1993 to 1996, Mr. Janney was a Vice President in Montgomery Securities' healthcare and biotechnology investment banking group, focusing on life sciences companies. Mr. Janney is a director of a number of companies including Esperion Therapeutics, Evolve Biosystems, Krystal Biotech, Prolacta Bioscience, Sutro Biopharma and Viveve Medical. Mr. Janney is currently a member of the California Academy of Sciences Board of Trustees. He holds a Bachelor of Arts in history from Georgetown University and an M.B.A. from the Anderson School at the University of California, Los Angeles.

We believe Mr. Janney is qualified to serve on our board of directors because of his experience working with and serving on the boards of directors of life sciences companies and his experience working in the venture capital industry.

Steven P. James has served as a member of our board of directors since April 2016. From July 2014 to present, Mr. James has been an independent director at several biotechnology companies and served as acting or interim Chief Executive Officer at Antiva Biosciences (previously Hera Therapeutics) and Pionyr Immunotherapeutics (previously Precision Immune). Mr. James served as President and Chief Executive Officer of Labrys Biologics, from December 2012 until its acquisition by Teva Pharmaceuticals in July 2014. He was President and Chief Executive Officer of KAI Pharmaceuticals, from October 2004 until its acquisition by Amgen in July 2012. He was Senior Vice President, Commercial Operations, at Exelixis, from 2003 until 2004. Previously he held senior business roles at Sunesis Pharmaceuticals and Isis Pharmaceuticals. He began his career in new product planning at Eli Lilly and Company. Mr. James was also a member of the board of directors of

Cascadian Therapeutics and Ocera Therapeutics, and is currently a director of Antiva Biosciences, Chrono Therapeutics and Pionyr Immunotherapeutics, where he has been President and Chief Executive Officer since January 2016. Mr. James earned a Bachelor of Arts degree in biology from Brown University and a Masters in Management degree from the Kellogg Graduate School of Management at Northwestern University.

We believe Mr. James is qualified to serve on our board of directors because of his experience as an executive of pharmaceutical companies, as well as his experience serving on the board of directors for several biotechnology companies.

John McKearn, Ph.D. has served as a member of our board of directors since December 2012. Dr. McKearn joined RiverVest Venture Partners, a venture capital firm, in April 2008 as a Venture Partner and has been a Managing Director since April 2011. Prior to joining RiverVest, Dr. McKearn was the Chief Executive Officer of Kalypsys, a biopharmaceutical company, from 2005 to December 2006, its President from 2004 to December 2006 and its Chief Scientific Officer from 2003 to 2005. From 2000 to June 2009, Dr. McKearn served on the board of IDM Pharma (acquired by Takeda), a biotechnology company. He also previously served on the board of directors of Epimmune, Keel Pharmaceuticals, ZS Pharma, Otonomy and Lumena Pharmaceuticals. From 1987 to 2003, Dr. McKearn worked as a scientist with G.D. Searle & Company, which merged into Pharmacia Corporation in 2000, serving as the head of discovery research from 1997 to 2003. Before that, he was a senior scientist at E.I. DuPont de Nemours and Company, a member of the Basel Institute for Immunology in Basel, Switzerland and a research associate in the Department of Microbiology and Immunology at Washington University in St. Louis. Dr. McKearn holds a Bachelor's degree in biology from Northern Illinois University and a Ph.D. in immunology from the University of Chicago.

We believe Dr. McKearn is qualified to serve on our board of directors because of his experience as a venture capital investor, his industry expertise and his leadership experience with biotechnology and pharmaceutical companies.

Paul Walker has served as a member of our board of directors since November 2017. Mr. Walker has been a partner of New Enterprise Associates, an investment firm focused on venture capital and growth equity investments, since April 2008, where Mr. Walker focuses on later-stage biotechnology and life sciences investments. From January 2001 to March 2008, Mr. Walker worked at MPM Capital, a life sciences venture capital firm, where he specialized in public, private-investment-in-public-equity and mezzanine-stage life sciences investing as a general partner with the MPM BioEquities Fund. From July 1996 to December 2000, Mr. Walker served as a portfolio manager at Franklin Resources, a global investment management organization known as Franklin Templeton Investments. Mr. Walker previously served as a member of the board of directors of TESARO, currently serves as a member of the board of directors of TRACON Pharmaceuticals, is a board observer of Sunesis Pharmaceuticals and manages a number of NEA's other late-stage and public investments. Mr. Walker received a B.S. in biochemistry and cell biology from the University of California at San Diego and holds the designation of Chartered Financial Analyst.

We believe Mr. Walker is qualified to serve on our board of directors because of his experience in the life sciences and venture capital industries, his educational background and his experience as a public company director.

Board Composition

Our board of directors currently consists of five members. After the completion of this offering, the number of directors will be fixed by our board of directors, subject to the terms of our amended and restated certificate of incorporation and amended and restated bylaws. Each of our current directors

will continue to serve as a director until the election and qualification of his or her successor, or until his or her earlier death, resignation or removal.

Our amended and restated certificate of incorporation will provide that our board of directors will be divided into three classes with staggered three-year terms. Only one class of directors will be elected at each annual meeting of stockholders, with the other classes continuing for the remainder of their respective three-year terms. Our current directors will be divided among the three classes as follows:

- the Class I directors will be , and their terms will expire at the annual meeting of stockholders to be held in 2019;
- the Class II directors will be , and their terms will expire at the annual meeting of stockholders to be held in 2020; and
- the Class III directors will be , and their terms will expire at the annual meeting of stockholders to be held in 2021.

At each annual meeting of stockholders, upon the expiration of the term of a class of directors, the successor to each such director in the class will be elected to serve from the time of election and qualification until the third annual meeting following his or her election and until his or her successor is duly elected and qualified, in accordance with our certificate of incorporation. Any additional directorships resulting from an increase 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 our directors.

This classification of our board of directors may have the effect of delaying or preventing changes in control of our company.

Director Independence

Upon the completion of this offering, we anticipate that our common stock will be listed on . Under the rules of , independent directors must comprise a majority of a listed company's board of directors within one year of the completion of this offering. In addition, the rules of require that, subject to specified exceptions, each member of a listed company's audit, compensation and corporate governance and nominating committees be independent. Audit committee members and compensation committee members must also satisfy the independence criteria set forth in Rule 10A-3 and Rule 10C-1, respectively, under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Under the rules of , a director will only qualify as an "independent director" if, in the opinion of that company's board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director.

To be considered to be independent for purposes of Rule 10A-3 and under the rules of , a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of directors or any other board committee: (1) accept, directly or indirectly, any consulting, advisory or other compensatory fee from the listed company or any of its subsidiaries or (2) be an affiliated person of the listed company or any of its subsidiaries.

To be considered independent for purposes of Rule 10C-1 and under the rules of , the board of directors must affirmatively determine that each member of the compensation committee is independent, including a consideration of all factors specifically relevant to determining whether the director has a relationship to the company which is material to that director's ability to be independent from management in connection with the duties of a compensation committee member, including, but not limited to: (i) the source of compensation of such director, including any consulting, advisory or other compensatory fee paid by the company to such director and (ii) whether such director is affiliated with the company, a subsidiary of the company or an affiliate of a subsidiary of the company.

Our board of directors undertook a review of its composition, the composition of its committees and the independence of our directors and considered whether any director has a material relationship with us that could compromise his or her ability to exercise independent judgment in carrying out his or her responsibilities. Based upon information requested from and provided by each director concerning his background, employment and affiliations, including family relationships, our board of directors has determined that , representing of our five directors, do not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that each of these directors is "independent" as that term is defined under the rules of .

In making these determinations, our board of directors considered the current and prior relationships that each non-employee director has with our company and all other facts and circumstances our board of directors deemed relevant in determining their independence, including the beneficial ownership of our capital stock by each non-employee director, and the transactions involving them described in the section titled "Certain Relationships and Related Party Transactions." There are no family relationships among any of our directors or executive officers.

Board Leadership Structure

Our board of directors is currently chaired by Mr. Janney. As a general policy, our board of directors believes that separation of the positions of Chair of our board of directors 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. As such, Dr. Alexander serves as our President and Chief Executive Officer while Mr. Janney serves as the Chair of our board of directors but is not an officer. We currently expect and intend the positions of Chair of our board of directors and Chief Executive Officer to continue to be held by two individuals in the future.

Role of the Board in Risk Oversight

Our board of directors has an active role, as a whole and also at the committee level, in overseeing the management of our risks. Our board of directors is responsible for general oversight of risks and regular review of information regarding our risks, including credit risks, liquidity risks and operational risks. The compensation committee is responsible for overseeing the management of risks relating to our executive compensation plans and arrangements. The audit committee is responsible for overseeing the management of risks relating to accounting matters and financial reporting. The corporate governance and nominating committee is responsible for overseeing the management of risks associated with the independence of our board of directors and potential conflicts of interest. Although each committee is responsible for evaluating certain risks and overseeing the management of such risks, our entire board of directors is regularly informed through discussions from committee members about such risks. Our board of directors believes its administration of its risk oversight function has not negatively affected the board of directors' leadership structure.

Board Committees

Our board of directors has an audit committee, a compensation committee and a corporate governance and nominating committee, each of which has the composition and the responsibilities described below.

Audit Committee

The members of our audit committee are .. is the chair of our audit committee. is our audit committee financial expert, as that term is defined under the SEC rules implementing

Section 407 of the Sarbanes-Oxley Act of 2002, and possesses financial sophistication, as defined under the rules of . Our audit committee oversees our corporate accounting and financial reporting process and assists our board of directors in monitoring our financial systems. Our audit committee will also:

- select and hire the independent registered public accounting firm to audit our financial statements;
- help to ensure the independence and performance of the independent registered public accounting firm;
- approve audit and non-audit services and fees;
- review financial statements and discuss with management and the independent registered public accounting firm our annual audited and quarterly financial statements, the results of the independent audit and the quarterly reviews and the reports and certifications regarding internal controls over financial reporting and disclosure controls;
- prepare the audit committee report that the SEC requires to be included in our annual proxy statement;
- review reports and communications from the independent registered public accounting firm;
- review the adequacy and effectiveness of our internal controls and disclosure controls and procedure;
- review our policies on risk assessment and risk management;
- review related party transactions; and
- establish and oversee procedures for the receipt, retention and treatment of accounting related complaints and the confidential submission by our employees of concerns regarding questionable accounting or auditing matters.

Our audit committee will operate under a written charter, to be effective prior to the completion of this offering, which will satisfy the applicable rules of the SEC and the listing standards of .

Compensation Committee

The members of our compensation committee are . is the chair of our compensation committee. Our compensation committee oversees our compensation policies, plans and benefits programs. The compensation committee will also:

- oversee our overall compensation philosophy and compensation policies, plans and benefit programs;
- review and approve or recommend to the board for approval compensation for our executive officers and directors;
- prepare the compensation committee report that the SEC will require to be included in our annual proxy statement; and
- administer our equity compensation plans.

Our compensation committee will operate under a written charter, to be effective prior to the completion of this offering, which will satisfy the applicable rules of the SEC and the listing standards of .

Corporate Governance and Nominating Committee

The members of our corporate governance and nominating committee are . is the chairman of our corporate governance and nominating committee. Our corporate governance and nominating committee oversees and assists our board of directors in reviewing and recommending nominees for election as directors. Specifically, the corporate governance and nominating committee will:

- identify, evaluate and make recommendations to our board of directors regarding nominees for election to our board of directors and its committees;
- consider and make recommendations to our board of directors regarding the composition of our board of directors and its committees;
- review developments in corporate governance practices;
- evaluate the adequacy of our corporate governance practices and reporting; and
- evaluate the performance of our board of directors and of individual directors.

Our corporate governance and nominating committee will operate under a written charter, to be effective prior to the completion of this offering, which will satisfy the applicable rules of the SEC and the listing standards of .

Director Compensation

To date, none of our non-employee directors has received any cash or equity compensation for serving on our board of directors, other than Mr. James. We do reimburse our directors for expenses associated with attending meetings of our board of directors and committees of our board of directors. Following the completion of this offering, we expect to implement an annual cash and equity compensation program for our non-employee directors.

The following table presents the total compensation each of our non-employee directors received during the year ended December 31, 2017. Other than as set forth in the table, we did not pay any compensation, make any equity awards or non-equity awards to or pay any other compensation to any of our non-employee directors in 2017.

	Fees Earned or Paid in Cash ($)	Option Awards ($)	Total ($)
Daniel Janney	—	—	—
Steven P. James(1)	25,000	—	25,000
John McKearn, Ph.D.	—	—	—
Paul Walker	—	—	—

(1) As of December 31, 2017, Mr. James held an option to purchase 78,600 shares of our common stock. One forty-eighth of the shares subject to the option vest monthly with a vesting commencement date of April 28, 2016, subject to continued service through each such vesting date. To date, none of our non-employee directors has received any cash or equity compensation for serving on our board of directors, other than Mr. James.

Directors who are also our employees receive no additional compensation for their service as directors. Drs. Alexander and Christopher Bebbington were our only employee directors during 2017. Dr. Bebbington resigned as a director in March 2017. See the section titled “Executive Compensation” for additional information about Dr. Alexander’s compensation.

Compensation Committee Interlocks and Inside Participation

None of the members of our compensation committee is or has been an officer or employee of our company. None of our executive officers currently serves, or in the past fiscal year has served, as a member of the board of directors or compensation committee (or other board committee performing equivalent functions or, in the absence of any such committee, the entire board of directors) of any entity that has one or more executive officers serving on our board of directors or compensation committee.

Code of Business Conduct and Ethics

Prior to the closing of this offering, we intend to adopt a written code of business conduct and ethics that will apply to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller or persons performing similar functions. Following this offering, the code of business conduct and ethics will be available on our website at www.allakos.com. We intend to disclose future amendments to such code, or any waivers of its requirements, applicable to any principal executive officer, principal financial officer, principal accounting officer or controller or persons performing similar functions or our directors on our website identified above. Information contained on the website is not incorporated by reference into this prospectus and should not be considered to be part of this prospectus.

EXECUTIVE COMPENSATION

Our named executive officers for 2017, which consist of our current and former principal executive officer and the next two most highly compensated executive officers, are:

- Robert Alexander, Ph.D., our President and Chief Executive Officer;
- Adam Tomasi, Ph.D., our Chief Financial Officer and Chief Operating Officer;
- Henrik Rasmussen, M.D., Ph.D., our Chief Medical Officer; and
- Christopher Bebbington, D.Phil., our former Chief Executive Officer and current Chief Scientific Officer.

Summary Compensation Table

The following table sets forth information regarding the compensation of our named executive officers for the year ended December 31, 2017.

Name and Principal Position	Year	Salary ($)(1)	Bonus ($)(2)	Option Awards ($)(3)	All Other Compensation ($)	Total ($)
Robert Alexander, Ph.D. *President and Chief Executive Officer*	2017	300,000	120,000	671,080	5,477	1,096,557
Adam Tomasi, Ph.D. *Chief Financial Officer and Chief Operating Officer*	2017	243,750	73,125	335,540	5,477	657,892
Henrik Rasmussen, M.D., Ph.D. *Chief Medical Officer*	2017	182,681	54,804	303,800	4,742	546,027
Christopher Bebbington, D.Phil. *Chief Scientific Officer*	2017	360,163	108,049	—	5,502	473,714

(1) The salary amounts shown for Drs. Alexander, Tomasi, Rasmussen and Bebbington represent the amounts they each earned during their employment by us in 2017. Dr. Alexander joined as President and Chief Executive Officer in April 2017 and had an annualized salary of $400,000. Dr. Tomasi joined as Chief Financial Officer and Chief Operating Officer in April 2017 and had an annualized salary of $325,000. Dr. Rasmussen joined as Chief Medical Officer in June 2017 and had an annualized salary of $317,000. Dr. Bebbington served as our President and Chief Executive Officer through March 2017.

(2) All bonus payments were made at the discretion of the board of directors based on our achievement of key metrics under our corporate plan for 2017 at maximum levels.

(3) The amounts disclosed represent the aggregate grant date fair value of the award as calculated in accordance with ASC 718. The assumptions used in calculating the grant date fair value of the award disclosed in this column are set forth in the notes to our audited financial statements included elsewhere in this prospectus. These amounts do not correspond to the actual value that may be recognized by the named executive officers upon vesting of the applicable awards.

Outstanding Equity Awards at Fiscal Year-End

The following table sets forth information concerning outstanding equity awards held by each of our named executive officers as of December 31, 2017:

		Option Awards				
Name	Grant Date(1)	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Equity incentive awards: number of securities underlying unexercised unearned options (#)	Option Exercise Price ($)(2)	Option Expiration Date
Robert Alexander, Ph.D.	05/17/2017	1,766,000(3)	—	—	0.55	05/17/2027
Adam Tomasi, Ph.D.	05/17/2017	883,000(4)	—	—	0.55	05/17/2027
Henrik Rasmussen, M.D., Ph.D.	10/02/2017	—	490,000(5)	—	0.93	10/02/2027
Christopher Bebbington, D.Phil.	09/05/2014	121,856(6)	88,121	—	0.31	09/05/2024
	04/24/2015	57,591(7)	26,178	—	0.34	04/24/2025
	01/20/2016	269,037(8)	292,433	—	0.42	01/20/2026

(1) Each of the outstanding options to purchase shares of our common stock was granted pursuant to our 2012 Equity Incentive Plan, as amended.
(2) This column represents the fair market value of a share of our common stock on the date of grant, as determined by our board of directors.
(3) This option award is subject to an early exercise provision and is immediately exercisable. The shares underlying this option award vest, subject to Dr. Alexander's continued role as a service provider to us, as to 1/4th of the total shares on April 3, 2018 and an additional 1/48th of the total shares on the same day of each month thereafter. This option award provides that: (i) in the event of a corporate transaction or a change in control (each as defined in the award agreement) 100% of the shares underlying this option award are subject to accelerated vesting, (ii) in the event that, during the period commencing three months prior to a corporate transaction or a change in control (each as defined in the award agreement), Dr. Alexander is (a) terminated without cause, (b) terminated due to death or disability or (c) resigns for good reason (each as defined in the award agreement), 100% of the shares underlying this option award are subject to accelerated vesting and (iii) in the event that Dr. Alexander is terminated without cause or resigns for good reason more than three months prior to a corporate transaction or change of control, then that number of shares underlying this option award would be subject to accelerated vesting as would have vested had Dr. Alexander remained employed on the first anniversary of the date of such termination or resignation.
(4) This option award is subject to an early exercise provision and is immediately exercisable. The shares underlying this option award vest, subject to Dr. Tomasi's continued role as a service provider to us, as to 1/4th of the total shares on April 3, 2018 and an additional 1/48th of the total shares on the same day of each month thereafter. This option award provides that: (i) in the event of a corporate transaction or a change in control (each as defined in the award agreement) 100% of the shares underlying this option award are subject to accelerated vesting, (ii) in the event that, during the period commencing three months prior to a corporate transaction or a change in control (each as defined in the award agreement), Dr. Tomasi is (a) terminated without cause, (b) terminated due to death or disability or (c) resigns for good reason (each as defined in the award agreement), 100% of the shares underlying this option award are subject to accelerated vesting and (iii) in the event that Dr. Tomasi is terminated without cause or resigns for good reason more than three months prior to a corporate transaction or change of control, then that number of shares underlying this option award would be subject to accelerated vesting as would have vested had Dr. Tomasi remained employed on the first anniversary of the date of such termination or resignation.
(5) The shares underlying this option award vest, subject to Dr. Rasmussen's continued role as a service provider to us, as to 1/4th of the total shares on June 5, 2018 and an additional 1/48th of the total shares on the same day of each month thereafter.
(6) The shares underlying this option award vested as to 1/48th of the total shares on October 5, 2014 and vested and continue to vest, subject to Dr. Bebbington's continued role as a service provider to us, an additional 1/48th of the total shares on the last day of each month thereafter.

(7) The shares underlying this option award vested as to 1/48th of the total shares on April 13, 2015 and vested and continue to vest, subject to Dr. Bebbington's continued role as a service provider to us, an additional 1/48th of the total shares on the last day of each month thereafter.
(8) The shares underlying this option award vested as to 1/48th of the total shares on February 6, 2016 and vested and continue to vest, subject to Dr. Bebbington's continued role as a service provider to us, an additional 1/48th of the total shares on the last day of each month thereafter.

Employment Arrangements with Our Named Executive Officers

We have entered into an employment offer letter agreement with each of our named executive officers in connection with their employment with us. These offer letters provide for "at will" employment.

Robert Alexander, Ph.D.

We currently expect that, prior to the completion of this offering, we will enter into a confirmatory employment letter with Dr. Alexander, our President and Chief Executive Officer. The confirmatory employment letter will have no specific term and will provide for at-will employment. Dr. Alexander's current annual base salary is $500,000 and Dr. Alexander is considered annually for a target bonus of 50% of his annual base salary, subject to the terms and conditions of a bonus plan approved by our board of directors.

Adam Tomasi, Ph.D.

We currently expect that, prior to the completion of this offering, we will enter into a confirmatory employment letter with Dr. Tomasi, our Chief Operating Officer, Chief Financial Officer and Secretary. The confirmatory employment letter will have no specific term and will provide for at-will employment. Dr. Tomasi's current annual base salary is $400,000 and Dr. Tomasi is considered annually for a target bonus of 40% of his annual base salary, subject to the terms and conditions of a bonus plan approved by our board of directors.

Henrik Rasmussen, M.D., Ph.D.

We currently expect that, prior to the completion of this offering, we will enter into a confirmatory employment letter with Dr. Rasmussen, our Chief Medical Officer. The confirmatory employment letter will have no specific term and will provide for at-will employment. Dr. Rasmussen's current annual base salary is $326,510 and Dr. Rasmussen is considered annually for a target bonus of 30% of his annual base salary, subject to the terms and conditions of a bonus plan approved by our board of directors.

Christopher Bebbington, D.Phil.

We currently expect that, prior to the completion of this offering, we will enter into a confirmatory employment letter with Dr. Bebbington, our Chief Scientific Officer. The confirmatory employment letter will have no specific term and will provide for at-will employment. Dr. Bebbington's current annual base salary is $360,163 and Dr. Bebbington is considered annually for a target bonus of 30% of his annual base salary, subject to the terms and conditions of a bonus plan approved by our board of directors.

Potential Payments upon Termination or Change of Control

We currently expect that, prior to the completion of this offering, we will adopt arrangements for our executive officers that provide for payments and benefits on termination or change of control, which arrangements may be included in the anticipated confirmatory offer letters or separate plans or agreements.

Employee Benefit and Stock Plans

2018 Equity Incentive Plan

Prior to the completion of this offering, our board of directors intends to adopt, and we expect our stockholders will approve, our 2018 Equity Incentive Plan ("2018 Plan"). We expect that our 2018 Plan will be effective on the business day immediately prior to the effective date of the registration statement of which this prospectus forms a part but will not be used until after the completion of this offering. Our 2018 Plan will provide for the grant of incentive stock options, within the meaning of Section 422 of the Internal Revenue Code ("Code"), to our employees and any of our subsidiary corporations' employees, and for the grant of nonstatutory stock options, restricted stock, restricted stock units, stock appreciation rights, performance units and performance shares to our employees, directors and consultants and our subsidiary corporations' employees and consultants.

Authorized Shares. A total of shares of our common stock will be reserved for issuance pursuant to our 2018 Plan. In addition, the shares reserved for issuance under our 2018 Plan also will include (a) those shares reserved but unissued under our 2012 Plan as of immediately prior to the termination of the 2012 Plan and (b) shares subject to awards under our 2012 Plan that, on or after the termination of the 2012 Plan, expire or terminate and shares previously issued pursuant to our 2012 Plan, as applicable, that, on or after the termination of the 2012 Plan, are forfeited or repurchased by us (except the maximum number of shares that may be added to our 2018 Plan pursuant to (a) and (b) is shares). The number of shares available for issuance under our 2018 Plan will also include an annual increase on the first day of each fiscal year beginning on January 1, 2019, equal to the least of:

- shares;
- percent (%) of the outstanding shares of our common stock as of the last day of the immediately preceding fiscal year; or
- such other amount as our board of directors may determine.

If an award expires or becomes unexercisable without having been exercised in full, is surrendered pursuant to an exchange program, or, with respect to restricted stock, restricted stock units, performance units or performance shares, is forfeited to or repurchased due to failure to vest, the unpurchased shares (or for awards other than stock options or stock appreciation rights, the forfeited or repurchased shares) will become available for future grant or sale under the 2018 Plan. With respect to stock appreciation rights, only the net shares actually issued will cease to be available under the 2018 Plan and all remaining shares under stock appreciation rights will remain available for future grant or sale under the 2018 Plan. Shares that have actually been issued under the 2018 Plan under any award will not be returned to the 2018 Plan; except if shares issued pursuant to awards of restricted stock, restricted stock units, performance shares or performance units are repurchased or forfeited, such shares will become available for future grant under the 2018 Plan. Shares used to pay the exercise price of an award or satisfy the tax withholding obligations related to an award will become available for future grant or sale under the 2018 Plan. To the extent an award is paid out in cash rather than shares, such cash payment will not result in a reduction in the number of shares available for issuance under the 2018 Plan.

Plan Administration. Our board of directors or one or more committees appointed by our board of directors will have authority to administer our 2018 Plan. We expect that the compensation committee of our board of directors will initially administer our 2018 Plan. In addition, if we determine it is desirable to qualify transactions under our 2018 Plan as exempt under Rule 16b-3 of the Exchange Act, such transactions will be structured to satisfy the requirements for exemption under Rule 16b-3. Subject to the provisions of our 2018 Plan, the administrator has the power to administer our 2018 Plan and make

all determinations deemed necessary or advisable for administering the 2018 Plan, including but not limited to, the power to determine the fair market value of our common stock, select the service providers to whom awards may be granted, determine the number of shares covered by each award, approve forms of award agreements for use under the 2018 Plan, determine the terms and conditions of awards (including, but not limited to, the exercise price, the time or times at which awards may be exercised, any vesting acceleration or waiver or forfeiture restrictions and any restriction or limitation regarding any award or the shares relating thereto), construe and interpret the terms of our 2018 Plan and awards granted under it, prescribe, amend and rescind rules relating to our 2018 Plan, including creating sub-plans, modify or amend each award, including but not limited to the discretionary authority to extend the post-termination exercisability period of awards (except no option or stock appreciation right will be extended past its original maximum term) and allow a participant to defer the receipt of payment of cash or the delivery of shares that would otherwise be due to such participant under an award). The administrator also has the authority to allow participants the opportunity to transfer outstanding awards to a financial institution or other person or entity selected by the administrator and to institute an exchange program by which outstanding awards may be surrendered or cancelled in exchange for awards of the same type, which may have a higher or lower exercise price and/or different terms, awards of a different type and/or cash or by which the exercise price of an outstanding award is increased or reduced. The administrator's decisions, interpretations and other actions are final and binding on all participants.

Stock Options. Stock options may be granted under our 2018 Plan. The exercise price of options granted under our 2018 Plan must at least be equal to the fair market value of our common stock on the date of grant. The term of an option may not exceed ten years. With respect to any participant who owns more than 10% of the voting power of all classes of our (or any subsidiary of ours) outstanding stock, the term of an incentive stock option granted to such participant must not exceed five years and the exercise price must equal at least 110% of the fair market value on the grant date. The administrator will determine the methods of payment of the exercise price of an option, which may include cash, shares or other property acceptable to the administrator, as well as other types of consideration permitted by applicable law. After the termination of service of an employee, director or consultant, he or she may exercise his or her option for the period of time stated in his or her option agreement. In the absence of a specified time in an award agreement, if termination is due to death or disability, the option will remain exercisable for 12 months. In all other cases, in the absence of a specified time in an award agreement, the option will remain exercisable for three months following the termination of service. An option, however, may not be exercised later than the expiration of its term. Subject to the provisions of our 2018 Plan, the administrator determines the other terms of options.

Stock Appreciation Rights. Stock appreciation rights may be granted under our 2018 Plan. Stock appreciation rights allow the recipient to receive the appreciation in the fair market value of our common stock between the exercise date and the date of grant. Stock appreciation rights may not have a term exceeding ten years. After the termination of service of an employee, director or consultant, he or she may exercise his or her stock appreciation right for the period of time stated in his or her stock appreciation rights agreement. In the absence of a specified time in an award agreement, if termination is due to death or disability, the stock appreciation rights will remain exercisable for 12 months. In all other cases, in the absence of a specified time in an award agreement, the stock appreciation rights will remain exercisable for three months following the termination of service. However, in no event may a stock appreciation right be exercised later than the expiration of its term. Subject to the provisions of our 2018 Plan, the administrator determines the other terms of stock appreciation rights, including when such rights become exercisable and whether to pay any increased appreciation in cash or with shares of our common stock, or a combination thereof, except that the per share exercise price for the shares to be issued pursuant to the exercise of a stock appreciation right will be no less than 100% of the fair market value per share on the date of grant.

Restricted Stock. Restricted stock may be granted under our 2018 Plan. Restricted stock awards are grants of shares of our common stock that vest in accordance with terms and conditions established by the administrator. The administrator will determine the number of shares of restricted stock granted to any employee, director or consultant and, subject to the provisions of our 2018 Plan, will determine the terms and conditions of such awards. The administrator may impose whatever vesting conditions it determines to be appropriate (for example, the administrator may set restrictions based on the achievement of specific performance goals or continued service to us), except the administrator, in its sole discretion, may accelerate the time at which any restrictions will lapse or be removed. Recipients of restricted stock awards generally will have voting and dividend rights with respect to such shares upon grant without regard to vesting, unless the administrator provides otherwise. Shares of restricted stock that do not vest are subject to our right of repurchase or forfeiture.

Restricted Stock Units. Restricted stock units may be granted under our 2018 Plan. RSUs are bookkeeping entries representing an amount equal to the fair market value of one share of our common stock. Subject to the provisions of our 2018 Plan, the administrator determines the terms and conditions of RSUs, including the vesting criteria and the form and timing of payment. The administrator may set vesting criteria based upon the achievement of company-wide, divisional, business unit or individual goals (including, but not limited to, continued employment or service), applicable federal or state securities laws or any other basis determined by the administrator in its discretion. The administrator, in its sole discretion, may pay earned restricted stock units in the form of cash, in shares or in some combination thereof. Notwithstanding the foregoing, the administrator, in its sole discretion, may accelerate the time at which any restrictions will lapse or be removed.

Performance Units and Performance Shares. Performance units and performance shares may be granted under our 2018 Plan. Performance units and performance shares are awards that will result in a payment to a participant only if performance objectives established by the administrator are achieved or the awards otherwise vest. The administrator will establish performance objectives or other vesting criteria in its discretion, which, depending on the extent to which they are met, will determine the number and/or the value of performance units and performance shares to be paid out to participants. The administrator may set performance objectives based on the achievement of company-wide, divisional, business unit or individual goals (including, but not limited to, continued employment or service), applicable federal or state securities laws or any other basis determined by the administrator in its discretion. After the grant of a performance unit or performance share, the administrator, in its sole discretion, may reduce or waive any performance objectives or other vesting provisions for such performance units or performance shares. Performance units will have an initial dollar value established by the administrator on or prior to the grant date. Performance shares will have an initial value equal to the fair market value of our common stock on the grant date. The administrator, in its sole discretion, may pay out earned performance units or performance shares in cash, shares or in some combination thereof.

Outside Directors. All outside (non-employee) directors will be eligible to receive all types of awards (except for incentive stock options) under our 2018 Plan. Prior to the completion of this offering, we intend to implement a formal policy pursuant to which our outside directors will be eligible to receive equity awards under our 2018 Plan. In order to provide a maximum limit on the awards that can be made to our outside directors, our 2018 Plan provides that in any given fiscal year, an outside director will not be granted awards having a grant-date fair value greater than $, but this limit is increased to $ in connection with the outside director's initial service (in each case, excluding awards granted to the outside director as a consultant or employee). The grant-date fair values will be determined according to Generally Accepted Accounting Principles. The maximum limits do not reflect the intended size of any potential grants or a commitment to make grants to our outside directors under our 2018 Plan in the future.

Non-Transferability of Awards. Unless the administrator provides otherwise, our 2018 Plan generally does not allow for the transfer of awards and only the recipient of an award may exercise an award during his or her lifetime. If the administrator makes an award transferrable, such award will contain such additional terms and conditions as the administrator deems appropriate.

Certain Adjustments. In the event of certain changes in our capitalization, to prevent diminution or enlargement of the benefits or potential benefits available under our 2018 Plan, the administrator will adjust the number and class of shares that may be delivered under our 2018 Plan and/or the number, class and price of shares covered by each outstanding award and the numerical share limits set forth in our 2018 Plan.

Dissolution or Liquidation. In the event of our proposed liquidation or dissolution, the administrator will notify participants as soon as practicable and all awards will terminate immediately prior to the consummation of such proposed transaction.

Merger or Change in Control. Our 2018 Plan provides that in the event of a merger or change in control, as defined under our 2018 Plan, each outstanding award will be treated as the administrator determines, without a participant's consent. The administrator is not required to treat all awards, all awards held by a participant or all awards of the same type, similarly.

In the event that a successor corporation or its parent or subsidiary does not assume or substitute an equivalent award for any outstanding award, then such award will fully vest, all restrictions on such award will lapse, all performance goals or other vesting criteria applicable to such award will be deemed achieved at 100% of target levels and such award will become fully exercisable, if applicable, for a specified period prior to the transaction, unless specifically provided for otherwise under the applicable award agreement or other written agreement with the participant. The award will then terminate upon the expiration of the specified period of time. If an option or stock appreciation right is not assumed or substituted, the administrator will notify the participant in writing or electronically that such option or stock appreciation right will be exercisable for a period of time determined by the administrator in its sole discretion and the option or stock appreciation right will terminate upon the expiration of such period.

If an outside director's awards are assumed or substituted for in a merger or change in control and the service of such outside director is terminated on or following the merger or change in control, other than pursuant to a voluntary resignation, his or her options and stock appreciation rights, if any, will vest fully and become immediately exercisable, all restrictions on his or her restricted stock and restricted stock units will lapse and all performance goals or other vesting requirements for his or her performance shares and units will be deemed achieved at 100% of target levels and all other terms and conditions met.

Amendment; Termination. The administrator has the authority to amend, suspend or terminate our 2018 Plan, provided such action does not impair the existing rights of any participant. Our 2018 Plan automatically will terminate in 2028, unless we terminate it sooner.

2012 Equity Incentive Plan, as amended

In 2012, our board of directors adopted, and our stockholders approved, our 2012 Plan. The 2012 Plan has been amended from time to time to increase the aggregate number of shares of our common stock reserved for issuance under the 2012 Plan, and was most recently amended on November 29, 2017, which amendment was approved by our stockholders on November 30, 2017. Our 2012 Plan permits the grant of incentive stock options, within the meaning of Section 422 of the Code, to our employees and our parent and subsidiary corporations' employees, and the grant of nonstatutory stock

options, stock appreciation rights, restricted stock and restricted stock units to our employees, directors and consultants and our parent and subsidiary corporations' employees and consultants.

Authorized Shares. Our 2012 Plan will be terminated in connection with this offering, and accordingly, no shares will be available for issuance under the 2012 Plan following the completion of this offering. Our 2012 Plan will continue to govern outstanding awards granted thereunder. As of December 31, 2017, options to purchase 6,104,949 shares of our common stock and 130,433 shares of restricted stock remained outstanding under our 2012 Plan.

Plan Administration. Our board of directors or one or more committees appointed by our board of directors administers our 2012 Plan. Subject to the provisions of our 2012 Plan, our administrator has the power to administer the plan, including but not limited to, the power to interpret the terms of our 2012 Plan and awards granted under it, prescribe, amend and rescind rules relating to our 2012 Plan, including creating sub-plans, and determine the terms of the awards, including the exercise price, the number of shares of our common stock subject to each such award, the exercisability of the awards and the form of consideration, if any, payable upon exercise. Our administrator also has the authority to amend existing awards, including the power to extend the post-termination exercisability period of awards, extend the maximum term of an option and allow participants to defer the receipt of the payment of cash or the delivery of shares that otherwise would be due to such participant under an award. The administrator also has the authority to amend existing awards to reduce or increase their exercise prices, allow participants the opportunity to transfer outstanding awards to a financial institution or other person or entity selected by the administrator, institute an exchange program by which outstanding awards may be surrendered or cancelled in exchange for awards of the same type, which may have a higher or lower exercise price or different terms, awards of a different type and/or cash and make all other determinations our administrator deems necessary or advisable for administering the 2012 Plan.

Options. Stock options may be granted under our 2012 Plan. The exercise price of options granted under our 2012 Plan must at least be equal to the fair market value of our common stock on the date of grant. The term of an incentive stock option may not exceed 10 years, except that with respect to any employee who owns more than 10% of the voting power of all classes of our (or any subsidiary of ours) outstanding stock, the term must not exceed five years and the exercise price must equal at least 110% of the fair market value on the grant date. The administrator will determine the methods of payment of the exercise price of an option, which may include cash, shares or other property acceptable to the administrator, as well as other types of consideration permitted by applicable law. After termination of an employee, director or consultant, he or she may exercise his or her option for the period of time specified in the applicable option agreement. If termination is due to death or disability, the option generally will remain exercisable for at least six months. In all other cases, the option will generally remain exercisable for at least 30 days. However, in no event may an option be exercised later than the expiration of its term. Subject to the provisions of our 2012 Plan, the administrator determines the other terms of options.

Stock Appreciation Rights. Stock appreciation rights may be granted under our 2012 Plan. Stock appreciation rights allow the recipient to receive the appreciation in the fair market value of our common stock between the exercise date and the date of grant. Stock appreciation rights may not have a term exceeding 10 years. After termination of an employee, director or consultant, he or she may exercise his or her stock appreciation rights for the period of time specified in the applicable award agreement. If termination is due to death or disability, the stock appreciations rights generally will remain exercisable for at least six months. In all other cases, the stock appreciation rights will generally remain exercisable for at least 30 days. However, in no event may stock appreciation rights be exercised later than the expiration of their term. Subject to the provisions of our 2012 Plan, the administrator determines the other terms of stock appreciation rights, including when such rights become exercisable and whether to pay any increased appreciation in cash or with shares of our

common stock, or a combination thereof, except that the per share exercise price for the shares of our common stock to be issued pursuant to the exercise of a stock appreciation right will be no less than 100% of the fair market value per share on the date of grant.

Restricted Stock. Restricted stock may be granted under our 2012 Plan. Restricted stock awards are grants of shares of our common stock that vest in accordance with terms and conditions established by the administrator. The administrator will determine the number of shares of restricted stock granted to any employee, director or consultant and, subject to the provisions of our 2012 Plan, will determine the terms and conditions of such awards. The administrator may impose whatever conditions for lapse of the restriction on the shares it determines to be appropriate (for example, the administrator may set restrictions based on the achievement of specific performance goals or continued service to us), except the administrator, in its sole discretion, may accelerate the time at which any restrictions will lapse or be removed. Recipients of restricted stock awards generally will have voting and dividend rights with respect to such shares upon grant without regard to the restriction, unless the administrator provides otherwise. Shares of restricted stock as to which the restrictions have not lapsed are subject to our right of repurchase or forfeiture.

Restricted Stock Units. Restricted stock units may be granted under our 2012 Plan. Restricted stock units are bookkeeping entries representing an amount equal to the fair market value of one share of our common stock. Subject to the provisions of our 2012 Plan, the administrator will determine the terms and conditions of restricted stock units, including the vesting criteria (which may include accomplishing specified performance criteria or continued service to us) and the form and timing of payment. Notwithstanding the foregoing, the administrator, in its sole discretion, may accelerate the time at which any restricted stock units will vest.

Non-Transferability of Awards. Unless the administrator provides otherwise, our 2012 Plan generally does not allow for the transfer of awards and only the recipient of an award may exercise an award during his or her lifetime.

Certain Adjustments. In the event of certain changes in our capitalization, to prevent diminution or enlargement of the benefits or potential benefits available under our 2012 Plan, the administrator will adjust the number and class of shares that may be delivered under our 2012 Plan and/or the number, class and price of shares covered by each outstanding award.

Dissolution or Liquidation. In the event of our proposed liquidation or dissolution, the administrator will notify participants as soon as practicable and all awards will terminate immediately prior to the consummation of such proposed transaction.

Merger or Change in Control. Our 2012 Plan provides that in the event of a merger or change in control, as defined under the 2012 Plan, each outstanding award will be treated as the administrator determines. If a successor corporation or its parent or subsidiary does not assume or substitute an equivalent award for any outstanding award, then such award will fully vest, all restrictions on the shares subject to such award will lapse, all performance goals or other vesting criteria applicable to the shares subject to such award will be deemed achieved at 100% of target levels and all of the shares subject to such award will become fully exercisable, if applicable, for a specified period prior to the transaction. The award will then terminate upon the expiration of the specified period of time. If an option or stock appreciation right is not assumed or substituted in the event of a merger or change in control, the administrator will notify the applicable participant in writing or electronically that the award will be exercisable for a period of time determined by the administrator, and the option or stock appreciation right will terminate upon the expiration of such period.

Amendment; Termination. Our board of directors has the authority to amend, alter, suspend or terminate the 2012 Plan, provided such action will not impair the existing rights of any participant,

unless mutually agreed to in writing between the participant and the administrator. As noted above, upon completion of this offering, our 2012 Plan will be terminated and no further awards will be granted thereunder. All outstanding awards will continue to be governed by their existing terms.

Executive Incentive Compensation Plan

Prior to the completion of this offering, our board of directors intends to adopt our Executive Incentive Compensation Plan ("Incentive Compensation Plan"). Our Incentive Compensation Plan will allow our compensation committee to grant incentive awards, generally payable in cash, to employees selected by our compensation committee, including our named executive officers, based upon performance goals established by our compensation committee.

Under our Incentive Compensation Plan, our compensation committee determines the performance goals applicable to any award, which goals may include, without limitation, goals related to . The performance goals may differ from participant to participant and from award to award.

Our compensation committee will administer our Incentive Compensation Plan. The administrator of our Incentive Compensation Plan may, in its sole discretion and at any time, increase, reduce or eliminate a participant's actual award, and/or increase, reduce or eliminate the amount allocated to the bonus pool for a particular performance period. The actual award may be below, at or above a participant's target award, in the discretion of the administrator. The administrator may determine the amount of any reduction on the basis of such factors as it deems relevant, and it is not required to establish any allocation or weighting with respect to the factors it considers.

Actual awards will be paid in cash (or its equivalent) only after they are earned, and, unless otherwise determined by the administrator, a participant must be employed by us through the date the actual award is paid. The compensation committee reserves the right to settle an actual award with a grant of an equity award under our then-current equity compensation plan, which equity award may have such terms and conditions, including vesting, as the compensation committee determines. Payment of awards occurs as soon as administratively practicable after they are earned, but no later than the dates set forth in our Incentive Compensation Plan.

Our board of directors and our compensation committee will have the authority to amend, alter, suspend or terminate our Incentive Compensation Plan, provided such action does not impair the existing rights of any participant with respect to any earned awards.

401(k) Plan

We maintain a 401(k) retirement savings plan for the benefit of our employees, including our named executive officers, who satisfy certain eligibility requirements. Under the 401(k) plan, eligible employees may elect to defer a portion of their compensation, within the limits prescribed by the Code, on a pre-tax or after-tax (Roth) basis, through contributions to the 401(k) plan. The 401(k) plan authorizes employer safe harbor contributions. The 401(k) plan is intended to qualify under Sections 401(a) and 501(a) of the Code. As a tax-qualified retirement plan, pre-tax contributions to the 401(k) plan and earnings on those pre-tax contributions are not taxable to the employees until distributed from the 401(k) plan, and earnings on Roth contributions are not taxable when distributed from the 401(k) plan. We match contributions made by our employees, including executive officers, up to 4% of an employee's annual compensation, based on the amount of the employee's contributions.

Limitation of Liability and Indemnification

Our amended and restated certificate of incorporation and amended and restated bylaws, each to be effective upon the completion of this offering, will provide that we will indemnify our directors and

officers, and may indemnify our employees and other agents, to the fullest extent permitted by Delaware law. Delaware law prohibits our amended and restated certificate of incorporation from limiting the liability of our directors for the following:

- any breach of the director's duty of loyalty to us or to our stockholders;
- acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law;
- unlawful payment of dividends or unlawful stock repurchases or redemptions; and
- any transaction from which the director derived an improper personal benefit.

If Delaware law is amended to authorize corporate action further eliminating or limiting the personal liability of a director, then the liability of our directors will be eliminated or limited to the fullest extent permitted by Delaware law, as so amended. Our amended and restated certificate of incorporation does not eliminate a director's duty of care and, in appropriate circumstances, equitable remedies, such as injunctive or other forms of non-monetary relief, remain available under Delaware law. This provision also does not affect a director's responsibilities under any other laws, such as the federal securities laws or other state or federal laws. Under our amended and restated bylaws, we will also be empowered to purchase insurance on behalf of any person whom we are required or permitted to indemnify.

In addition to the indemnification required in our amended and restated certificate of incorporation and amended and restated bylaws, we intend to enter into an indemnification agreement with each member of our board of directors and each of our officers prior to the completion of the offering. These agreements provide for the indemnification of our directors and officers for certain expenses and liabilities incurred in connection with any action, suit, proceeding or alternative dispute resolution mechanism or hearing, inquiry or investigation that may lead to the foregoing, to which they are a party, or are threatened to be made a party, by reason of the fact that they are or were a director, officer, employee, agent or fiduciary of our company, or any of our subsidiaries, by reason of any action or inaction by them while serving as an officer, director, agent or fiduciary, or by reason of the fact that they were serving at our request as a director, officer, employee, agent or fiduciary of another entity. In the case of an action or proceeding by or in the right of our company or any of our subsidiaries, no indemnification will be provided for any claim where a court determines that the indemnified party is prohibited from receiving indemnification. We believe that these charter and bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duties. They may also reduce the likelihood of derivative litigation against directors and officers, even though an action, if successful, might benefit us and our stockholders. Moreover, a stockholder's investment may be harmed to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act, and is, therefore, unenforceable. There is no pending litigation or proceeding naming any of our directors or officers as to which indemnification is being sought, nor are we aware of any pending or threatened litigation that may result in claims for indemnification by any director or officer.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Other than compensation arrangements, including employment, termination of employment and change in control arrangements, with our directors and executive officers, including those discussed in the sections titled “Management” and “Executive Compensation,” and the registration rights described in the section titled “Description of Capital Stock—Registration Rights,” the following is a description of each transaction since January 1, 2015 and each currently proposed transaction in which:

- we have been or are to be a participant;
- the amount involved exceeded or exceeds $120,000; and
- any of our directors, executive officers or holders of more than 5% of our outstanding capital stock, or any immediate family member of, or person sharing the household with, any of these individuals or entities, had or will have a direct or indirect material interest.

Sales of Securities

The following table sets forth a summary of the sale and issuance of our securities to related persons since January 1, 2015, other than compensation arrangements which are described under the sections of this prospectus titled “Management—Director Compensation” and “Executive Compensation.” See the section titled “Principal Stockholders” for additional information regarding beneficial ownership of our capital stock.

Purchaser	Affiliated Director	Shares of Common Stock	Shares of Series A Convertible Preferred Stock	Shares of Series B Convertible Preferred Stock
5% Stockholders:				
Entities affiliated with Alta Partners VIII, LP(1)	Daniel Janney	—	4,127,648	1,548,760
Roche Finance Ltd		—	1,876,204	628,291
Entities affiliated with RiverVest Venture Fund III, L.P.(2)	John McKearn, Ph.D.	—	1,876,205	971,777
Entities affiliated with New Enterprise Associates 16, L.P.(3)	Paul Walker	—	—	2,522,736
Entities affiliated with Capital Research and Management Company		—	—	2,522,736
Directors and Executive Officers:				
Christopher Bebbington, D.Phil.(4)		560,000	—	220

(1) The entity associated with Alta Partners VIII, LP holding our securities whose shares are aggregated for purposes of reporting share ownership information is Alta Partners IX, LP.

(2) Entities associated with RiverVest Venture Fund III, L.P. holding our securities whose shares are aggregated for purposes of reporting share ownership information are (i) 3x5 RiverVest Fund II, L.P., (ii) RiverVest Venture Fund II, L.P., (iii) River Vest Venture Fund II (Ohio), L.P., (iv) RiverVest Venture Fund III (Ohio), L.P. and (v) 3x5 RiverVest Fund II-B, L.P.

(3) The entity associated with New Enterprise Associates 16, L.P. holding our securities whose shares are aggregated for purposes of reporting share ownership information is NEA Ventures 2017, Limited Partnership.

(4) Consists of (i) 318,700 shares of common stock held by Dr. Bebbington and (ii) 241,300 shares of common stock and 220 shares of Series B convertible preferred stock held by the Bebbington Family Trust Dated May 7th 2003, for which Dr. Bebbington serves as trustee. All of the shares of common stock held by Dr. Bebbington or the trust in the table above were acquired through the exercise of employee stock options.

Series A Convertible Preferred Stock

In March 2015 and January 2016, we issued and sold an aggregate of 12,194,193 shares of our Series A convertible preferred stock at a purchase price of $1.80 per share, for aggregate gross proceeds of $21.9 million, to a total of 10 accredited investors, including Alta Partners VIII, LP, Roche Finance Ltd, RiverVest Venture Fund III, L.P., RiverVest Venture Fund II, L.P., River Vest Venture Fund II (Ohio), L.P. and RiverVest Venture Fund III (Ohio), L.P.

Series B Convertible Preferred Stock

In November 2017, we issued and sold an aggregate of 12,631,506 shares of our Series B convertible preferred stock at a purchase price of approximately $7.93 per share, for aggregate gross proceeds of $100.1 million, including the conversion of the principal amount and accrued interest of outstanding notes, to a total of 40 accredited investors, including the Bebbington Family Trust Dated May 7th, 2003, Alta Partners VIII, LP, Alta Partners IX, LP, Roche Finance Ltd, RiverVest Venture Fund III, L.P., 3x5 RiverVest Fund II, L.P., RiverVest Venture Fund II, L.P., River Vest Venture Fund II (Ohio), L.P., RiverVest Venture Fund III (Ohio), L.P., 3x5 RiverVest Fund II-B, L.P., New Enterprise Associates 16, L.P., NEA Ventures 2017, Limited Partnership and SMALLCAP World Fund, Inc.

Investors' Rights Agreement

We are party to an investors' rights agreement, as amended, with certain holders of our capital stock, including Dr. Bebbington, the Bebbington Family Trust Dated May 7th, 2003, Alta Partners VIII, LP, Alta Partners IX, LP, Roche Finance Ltd, RiverVest Venture Fund III, L.P., 3x5 RiverVest Fund II, L.P., RiverVest Venture Fund II, L.P., River Vest Venture Fund II (Ohio), L.P., RiverVest Venture Fund III (Ohio), L.P., 3x5 RiverVest Fund II-B, L.P., New Enterprise Associates 16, L.P., NEA Ventures 2017, Limited Partnership and SMALLCAP World Fund, Inc. Under our investors' rights agreement, certain holders of our capital stock have the right to demand that we file a registration statement or request that their shares of our capital stock be covered by a registration statement that we are otherwise filing. See the section titled "Description of Capital Stock—Registration Rights" for additional information regarding these registration rights.

Right of First Refusal and Co-Sale Agreement

Pursuant to our equity compensation plans and certain agreements with certain holders of our capital stock, including Dr. Bebbington, the Bebbington Family Trust Dated May 7th, 2003, Alta Partners VIII, LP, Alta Partners IX, LP, Roche Finance Ltd, RiverVest Venture Fund III, L.P., 3x5 RiverVest Fund II, L.P., RiverVest Venture Fund II, L.P., River Vest Venture Fund II (Ohio), L.P., RiverVest Venture Fund III (Ohio), L.P., 3x5 RiverVest Fund II-B, L.P., New Enterprise Associates 16, L.P., NEA Ventures 2017, Limited Partnership and SMALLCAP World Fund, Inc., including a right of first refusal and co-sale agreement, as amended, we or our assignees have a right to purchase shares of our common stock which certain stockholders propose to sell to other parties. This right will terminate upon the completion of this offering. See the section titled "Principal Stockholders" for additional information regarding beneficial ownership of our capital stock.

Voting Agreement

We are party to a voting agreement, as amended under which certain holders of our capital stock, including Dr. Bebbington, the Bebbington Family Trust Dated May 7th, 2003, Alta Partners VIII, LP, Alta Partners IX, LP, Roche Finance Ltd, RiverVest Venture Fund III, L.P., 3x5 RiverVest Fund II, L.P., RiverVest Venture Fund II, L.P., River Vest Venture Fund II (Ohio), L.P., RiverVest Venture Fund III (Ohio), L.P., 3x5 RiverVest Fund II-B, L.P., New Enterprise Associates 16, L.P., NEA Ventures 2017,

Limited Partnership and SMALLCAP World Fund, Inc., have agreed as to the manner in which they will vote their shares of our capital stock on certain matters, including with respect to the election of directors. This agreement will terminate upon the completion of this offering, and thereafter none of our stockholders will have any special rights regarding the election or designation of members of our board of directors.

Indemnification Agreements

We have entered, and intend to continue to enter, into separate indemnification agreements with each of our directors and executive officers, in addition to the indemnification provided for in our amended and restated certificate of incorporation and amended and restated bylaws. The indemnification agreements and our amended restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering require us to indemnify our directors, executive officers and certain controlling persons to the fullest extent permitted by Delaware law. See the section titled “Executive Compensation—Limitation of Liability and Indemnification” for additional information.

Transactions with Certain Employees

Our current Director of Clinical Project Management, Jacob Rasmussen and our current Clinical Program Manager, Camilla Shaw, are the son and daughter of Dr. Henrik Rasmussen, our Chief Medical Officer. Mr. Jacob Rasmussen and Ms. Shaw receive an annual salary of $140,000 and $150,000, respectively, and certain benefits that are also provided to our other similarly situated employees, which benefits have an approximate annual value of $23,000 to each of Mr. Jacob Rasmussen and Ms. Shaw. During the fiscal year ended December 31, 2017, Mr. Jacob Rasmussen and Ms. Shaw were also awarded discretionary cash bonuses in the amount of approximately $15,000 and $6,000, respectively, and stock options to purchase up to 60,000 and 21,000, respectively, shares of our common stock, subject to vesting. Prior to her employment as Clinical Program Manager, Ms. Shaw provided services to us as a consultant from July 2017 to September 2017, during which time she received approximately $36,000 in cash compensation for services provided.

Related Party Transaction Policy

Our audit committee will have the primary responsibility for reviewing and approving or disapproving “related party transactions,” which are transactions between us and related persons in which the aggregate amount involved exceeds or may be expected to exceed $120,000 and in which a related person has or will have a direct or indirect material interest. The charter of our audit committee will provide that our audit committee shall review and approve in advance any related party transaction.

Prior to the completion of this offering, we intend to adopt a formal written policy providing that we are not permitted to enter into any transaction that exceeds $120,000 and in which any related person has a direct or indirect material interest without the consent of our audit committee. In approving or rejecting any such transaction, our audit committee is to consider the relevant facts and circumstances available and deemed relevant to our audit committee, including whether the transaction is on terms no less favorable than terms generally available to an unaffiliated third party under the same or similar circumstances and the extent of the related person’s interest in the transaction.

PRINCIPAL STOCKHOLDERS

The following table sets forth the beneficial ownership of our common stock as of December 31, 2017 by:

- each person, or group of affiliated persons, who is known by us to beneficially own more than 5% of our common stock;
- each of the named executive officers;
- each of our directors; and
- all of our current executive officers and directors as a group.

We have determined beneficial ownership in accordance with the rules of the SEC, and thus it represents sole or shared voting or investment power with respect to our 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 that they beneficially owned, subject to community property laws where applicable. The information does not necessarily indicate beneficial ownership for any other purpose, including for purposes of Sections 13(d) and 13(g) of the Exchange Act.

We have based our calculation of the percentage of beneficial ownership prior to this offering on 41,357,383 shares of our common stock outstanding as of December 31, 2017, which includes 38,714,587 shares of our common stock resulting from the automatic conversion of all outstanding shares of our convertible preferred stock into our common stock immediately prior to the completion of this offering, as if this conversion had occurred as of December 31, 2017. We have based our calculation of the percentage of beneficial ownership after this offering on shares of our common stock outstanding immediately after the completion of this offering, assuming no exercise by the underwriters of their option to purchase additional shares. We have deemed shares of our common stock subject to stock options that are currently exercisable or exercisable within 60 days of December 31, 2017, to be outstanding and to be beneficially owned by the person holding the stock option for the purpose of computing the percentage ownership of that person. We did not deem these shares outstanding, however, for the purpose of computing the percentage ownership of any other person.

Unless otherwise indicated, the address of each beneficial owner listed in the table below is c/o Allakos Inc., 75 Shoreway Road, Suite A, San Carlos, CA 94070.

Name of Beneficial Owner	Shares Beneficially Owned Prior to this Offering		Shares Beneficially Owned After this Offering	
	Shares	Percentage	Shares	Percentage
5% Stockholders:				
Entities affiliated with Alta Partners VIII, LP(1)	14,086,505	34.06%		
Roche Finance Ltd(2)	5,763,408	13.94%		
Entities affiliated with RiverVest Venture Fund III, L.P.(3)	9,075,196	21.94%		
Entities affiliated with New Enterprise Associates 16, L.P.(4)	2,522,736	6.10%		
Entities affiliated with Capital Research and Management Company(5)	2,522,736	6.10%		
Named Executive Officers and Directors:				
Robert Alexander, Ph.D.(6)	1,766,000	4.10%		
Adam Tomasi, PhD.(7)	883,000	2.09%		
Henrik Rasmussen, M.D., Ph.D.	—	—		
Daniel Janney(8)	14,086,505	34.06%		
Steven P. James(9)	36,025	*		
John McKearn, Ph.D.(10)	9,075,196	21.94%		
Paul Walker(11)	2,522,736	6.10%		
Christopher Bebbington, D.Phil.(12)	1,361,171	3.25%		
All executive officers and directors as a group (8 persons)(13)	29,730,633	66.75%		

* Represents beneficial ownership of less than one percent (1%) of the outstanding shares of our common stock.

(1) Consists of (a) 9,778,673 shares held of record by Alta Partners VIII, LP (“Alta VIII”) and (b) 4,307,832 shares held of record by Alta Partners IX, LP. (“Alta IX”). The shares directly held by Alta VIII are indirectly held by Alta Partners Management VIII, LLC (“Alta Management VIII”), which is the general partner of Alta VIII. The individual managing directors of Alta Management VIII are Farah Champsi, Guy Nohra and Daniel Janney, one of our directors. The managing directors of Alta Management VIII exercise sole voting and investment control with respect to the shares held by Alta VIII. The shares directly held by Alta IX are indirectly held by Alta Partners Management IX, LLC (“Alta Management IX”), which is the general partner of Alta IX. The individual managing directors of Alta Management IX are Robert More, Peter Hudson and Daniel Janney, one of our directors. The managing directors of Alta Management IX exercise sole voting and investment control with respect to the shares held by Alta IX. The individual managing directors of Alta Management VIII and Alta Management IX disclaim beneficial ownership of all shares held by Alta VIII and Alta IX, except to the extent of their pecuniary interests therein. The address of the above referenced entities is One Embarcadero Center, Suite 3700, San Francisco, CA 94111.

(2) Consists of 5,763,408 shares held of record by Roche Finance Ltd (“Roche Finance”). Roche Finance is a wholly owned subsidiary of Roche Holding Ltd. (“Roche Holding”), a publicly-held corporation. The address of Roche Finance is Grenzacherstrasse 122, Basel, 4070 Switzerland and the address of Roche Holding is Grenzacherstrasse 124, Basel, 4070 Switzerland.

(3) Consists of (a) 1,225,871 shares held of record by RiverVest Venture Fund II, L.P. (“RiverVest II”), (b) 332,971 shares held of record by RiverVest Venture Fund II (Ohio), L.P. (“RiverVest (Ohio) II”), (c) 4,398,530 shares held of record by RiverVest Venture Fund III, L.P. (“RiverVest III”), (d) 233,451 shares held of record by RiverVest Venture Fund III (Ohio), L.P. (“RiverVest (Ohio) III”), (e) 2,779,383 shares held of record by 3x5 RiverVest Fund II, L.P. (“3x5 II”) and (f) 104,990

shares held of record by 3x5 RiverVest Fund II-B, L.P. (“3x5 II-B”). The shares directly held by RiverVest II are indirectly held by RiverVest Venture Partners II, L.P. (“RiverVest Partners II”), which is the general partner of RiverVest II. The shares directly held by RiverVest (Ohio) II are indirectly held by RiverVest Venture Partners II (Ohio), LLC (“RiverVest Partners (Ohio) II”), which is the general partner of RiverVest (Ohio) II. RiverVest Partners II is the sole member of RiverVest Partners (Ohio) II. RiverVest Venture Partners II, LLC is the general partner of RiverVest Partners II. John P. McKearn, Ph.D., one of our directors, is an Authorized Person of RiverVest Venture Partners II, LLC and may be deemed to share dispositive voting and investment power with respect to the shares held by RiverVest II and RiverVest (Ohio) II. The shares directly held by RiverVest III are indirectly held by RiverVest Venture Partners III, L.P. (“RiverVest Partners III”), which is the general partner of RiverVest III. The shares directly held by RiverVest (Ohio) III are indirectly held by RiverVest Venture Partners III (Ohio), LLC (“RiverVest Partners (Ohio) III”), which is the general partner of RiverVest (Ohio) III. RiverVest Partners III is the sole member of RiverVest Partners (Ohio) III. RiverVest Venture Partners III, LLC is the general partner of RiverVest Partners III. John P. McKearn, Ph.D., one of our directors, is a Manager of RiverVest Venture Partners III, LLC and may be deemed to share dispositive voting and investment power with respect to the shares held by RiverVest III and RiverVest (Ohio) III. The shares directly held by 3x5 II and 3x5 II-B are indirectly held by 3x5 RiverVest Partners II, LLC (“3x5 Partners II”), which is the general partner of 3x5 II and 3x5 II-B. RiverVest 3x5 Managers II, L.P. (“3x5 Managers II”), is a Member of 3x5 Partners II. RiverVest 3x5 Managers II, LLC is the general partner of 3x5 Managers II. John P. McKearn, Ph.D., one of our directors, is a Member of RiverVest 3x5 Managers II, LLC and may be deemed to share dispositive voting and investment power with respect to the shares held by 3x5 II and 3x5 II-B. Dr. McKearn disclaims beneficial ownership of all shares held by RiverVest II, RiverVest (Ohio) II, RiverVest III, RiverVest (Ohio) III, 3x5 II and 3x5 II-B except to the extent of his pecuniary interests therein. The address of the above referenced entities is 101 S. Hanley Road, Suite 1850, St. Louis, MO 63105.

(4) Consists of (a) 2,520,844 shares held of record by New Enterprise Associates 16, L.P. (“NEA 16”) and (b) 1,892 shares held of record by NEA Ventures 2017, L.P. (“Ven 2017”). The shares directly held by NEA 16 are indirectly held by NEA Partners 16, L.P. (“NEA Partners 16”), the sole general partner of NEA 16, NEA 16 GP, LLC (“NEA 16 LLC”), the sole general partner of NEA Partners 16, and each of the individual Managers of NEA 16 LLC. The individual Managers of NEA 16 LLC, (collectively, the “Managers”), are Peter J. Barris, Forest Baskett, Anthony A. Florence, David M. Mott, Mohamad Makhzoumi, Chetan Puttagunta, Jon Sakoda, Joshua Makower, Peter Sonsini, Ravi Viswanathan and Scott D. Sandell. NEA Partners 16, NEA 16 LLC and the Managers share voting and dispositive power with regard to the Company’s securities directly held by NEA 16. The shares held directly by Ven 2017 are indirectly held by Karen P. Welsh, the general partner of Ven 2017. Karen P. Welsh has voting and dispositive power with regard to the shares of the Company’s securities directly held by Ven 2017. Paul Walker, a member of the Company’s board of directors and an affiliate of NEA 16 and Ven 2017, has no voting or investment control over any of the shares held by NEA 16 and Ven 2017 and disclaims beneficial ownership of all shares owned by NEA 16 and Ven 2017, except to the extent of any pecuniary interest therein. All indirect holders of the above referenced securities disclaim beneficial ownership of the above referenced securities except to the extent of their pecuniary interests therein. The address of the above referenced entities is 1954 Greenspring Drive, Suite 600, Timonium MD, 21093.

(5) Consists of 2,522,736 shares held of record by Clipperbay and Co. (HG22) (“Clipperbay”) for the benefit of SMALLCAP World Fund, Inc. (“SMALLCAP”). Capital Research and Management Company (“CRMC”) is the investment adviser of SMALLCAP. CRMC provides investment services to SMALLCAP through its division, Capital Research Global Investors (“CRGI”). In that capacity, CRGI may be deemed to be the beneficial owner of the shares held by SMALLCAP. CRGI, however, disclaims such beneficial ownership, except to the extent of any pecuniary interest therein. On behalf of CRMC, CRGI has primary responsibility for the management of SMALLCAP’s portfolio, which includes the shares held by Clipperbay for the benefit of

SMALLCAP, and as such, the applicable portfolio managers of CRGI have dispositive authority over the shares held by Clipperbay for the benefit of SMALLCAP. The address of the above referenced entities is 333 South Hope Street, 33rd Floor, Los Angeles, CA 90071.

(6) Consists of 1,766,000 shares subject to an option held by Dr. Alexander, of which all shares are early exercisable within 60 days of December 31, 2017 and no shares are vested as of such date.

(7) Consists of 883,000 shares subject to an option held by Dr. Tomasi, of which all shares are early exercisable within 60 days of December 31, 2017 and no shares are vested as of such date.

(8) Consists of the shares described in footnote (1) above. Mr. Janney is a managing director of Alta Management VIII and Alta Management IX and shares voting and investment control with respect to these shares. Mr. Janney disclaims beneficial ownership of all shares held by Alta VIII and Alta IX, except to the extent of any pecuniary interest therein.

(9) Consists of 78,600 shares subject to an option held by Mr. James, of which 36,025 shares are vested and exercisable within 60 days of December 31, 2017.

(10) Consists of the shares described in footnote (3) above. Dr. McKearn is an Authorized Person of RiverVest Venture Partners II, LLC, a Manager of RiverVest Venture Partners III, LLC and a Member of RiverVest 3x5 Managers II, LLC and shares voting and investment control with respect to these shares. Dr. McKearn disclaims beneficial ownership of all shares held by RiverVest II, RiverVest (Ohio) II, RiverVest III, RiverVest (Ohio) III, 3x5 II and 3x5 II-B, except to the extent of any pecuniary interest therein.

(11) Paul Walker, a member of our board of directors and an affiliate of NEA 16 and Ven 2017, has no voting or investment control over and any of the shares held by NEA 16 and Ven 2017. Mr. Walker disclaims beneficial ownership of all shares owned by NEA 16 and Ven 2017, except to the extent of any pecuniary interest therein.

(12) Consists of (a) 624,700 shares held of record by Dr. Bebbington, of which no shares are subject to repurchase by us at the original purchase price as of December 31, 2017, (b) 241,520 shares held of record by Bebbington Family Trust Dated May 7th 2003, for which Dr. Bebbington serves as trustee, of which no shares are subject to repurchase by us at the original purchase price as of December 31, 2017 and (c) 855,216 shares subject to options held by Dr. Bebbington, of which 494,951 shares are vested and exercisable within 60 days of December 31, 2017.

(13) Consists of (a) 29,730,633 shares beneficially owned by our current executive officers and directors as of December 31, 2017, of which no shares may be repurchased by us at the original purchase price as of such date and (b) 3,179,976 shares subject to options exercisable within 60 days of December 31, 2017, of which 530,976 are vested as of such date.

DESCRIPTION OF CAPITAL STOCK

The following descriptions of our capital stock and certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws are summaries and are qualified by reference to the amended and restated certificate of incorporation and the amended and restated bylaws that will be in effect upon completion of this offering. Copies of these documents will be filed with the SEC as exhibits to our registration statement, of which this prospectus forms a part. The descriptions of the common stock and preferred stock reflect changes to our capital structure that will occur upon the completion of this offering.

Upon the completion of this offering and the filing of our amended and restated certificate of incorporation to be effective upon completion of this offering, our authorized capital stock will consist of shares of common stock, par value $0.001 per share, and shares of convertible preferred stock, par value $0.001 per share.

Upon the closing of this offering, all the outstanding shares of our convertible preferred stock will automatically convert into an aggregate of 38,714,587 shares of our common stock.

Based on 2,642,796 shares of common stock outstanding as of December 31, 2017, and after giving effect to the automatic conversion of all of our outstanding convertible preferred stock into an aggregate of 38,714,587 shares of common stock upon the completion of this offering and the issuance of shares of common stock in this offering, there will be shares of common stock outstanding upon the closing of this offering. As of December 31, 2017, we had 58 stockholders of record. As of December 31, 2017, there were 6,104,949 shares of common stock subject to outstanding options. As of December 31, 2017, there were 59,522 shares of common stock subject to an outstanding warrant, with a weighted-average exercise price of $0.49 per share.

Common Stock

Voting Rights

Each holder of common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders, including the election of directors. Our certificate of incorporation and bylaws to be in effect upon the completion of this offering do not provide for cumulative voting rights. Because of this, the holders of a plurality 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. With respect to matters other than the election of directors, at any meeting of the stockholders at which a quorum is present or represented, the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at such meeting and entitled to vote on the subject matter shall be the act of the stockholders, except as otherwise required by law. The holders of a majority of the stock issued and outstanding and entitled to vote, present in person or represented by proxy, shall constitute a quorum for the transaction of business at all meetings of the stockholders.

Dividends

Subject to preferences that may be applicable to any then-outstanding convertible preferred stock, holders of our common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds.

Liquidation

In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then-outstanding shares of convertible preferred stock.

Rights and Preferences

Holders of our common stock have no preemptive, conversion, subscription or other rights, and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of our convertible preferred stock that we may designate in the future.

Fully Paid and Nonassessable

All of our outstanding shares of common stock are, and the shares of common stock to be issued in this offering, upon payment and delivery in accordance with the underwriting agreement, will be fully paid and nonassessable.

Preferred Stock

Upon the closing of this offering, our board of directors will have the authority, without further action by the stockholders, to issue up to shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, redemption rights, liquidation preferences, sinking fund terms and the number of shares constituting any series or the designation of such series, any or all of which may be greater than the rights of common stock. The issuance of preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing change in our control or other corporate action. Upon closing of this offering, no shares of preferred stock will be outstanding, and we have no present plan to issue any shares of preferred stock.

Common Stock Options

As December 31, 2017, we had outstanding options to purchase an aggregate of 6,104,949 shares of our common stock, with a weighted-average exercise price of $0.53 per share, under our 2012 Plan. After December 31, 2017, we issued options to purchase an aggregate of 1,675,727 shares of our common stock, with a weighted-average exercise price of $3.21 per share, under our 2012 Plan.

Common Stock Warrants

As of December 31, 2017, we had warrants exercisable for an aggregate of 59,522 shares of our common stock at a weighted-average exercise price of $0.49 per share issued to one accredited investor in June 2016. The warrant was originally exercisable for 29,761 shares of our common stock, and in December 2016 the number of shares exercisable under the warrant was increased to 59,522 due to the occurrence of an event that triggered such increase under the terms of the warrant. The warrant expires on June 30, 2026, but would also expire earlier upon certain transactions involving the merger of our company with or into another organization or the sale or disposition of all or substantially all of our assets. The warrant contains provisions for adjustment of the exercise price and number of shares issuable upon the exercise of the warrant in the event of certain stock dividends, subdivisions and stock splits or combinations. The warrant has a net exercise provision under which its holder may, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares based on the fair market value of our stock at the time of exercise of the warrant after deduction of the aggregate exercise price.

Registration Rights

After the completion of this offering, under our investors' rights agreement, as amended, the holders of approximately 38,714,587 shares of common stock or their transferees, have the right to

require us to register the offer and sale of their shares, or to include their shares in any registration statement we file, in each case as described below.

Demand Registration Rights

After the completion of this offering, the holders of up to 38,714,587 shares of our common stock will be entitled to certain demand registration rights. At any time beginning 180 days after the effective date of this offering, the holders of at least 50% of the shares having registration rights then outstanding can request that we file a registration statement to register the offer and sale of their shares. We are only obligated to effect up to two such registrations. Each such request for registration must cover securities the anticipated aggregate public offering price of which, before deducting underwriting discounts and commissions, is at least $10 million. These demand 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 certain circumstances. If we determine that it would be seriously detrimental to us and our stockholders to effect such a demand registration, we have the right to defer such registration, not more than twice in any twelve month period, for a period of up to 120 days.

Form S-3 Registration Rights

After the completion of this offering, the holders of up to 38,714,587 shares of our common stock will be entitled to certain Form S-3 registration rights. At any time when we are eligible to file a registration statement on Form S-3, the holders of the shares having these rights then outstanding can request that we register the offer and sale of their shares of our common stock on a registration statement on Form S-3 so long as the request covers securities the anticipated aggregate public offering price of which is at least $1 million. These stockholders may make an unlimited number of requests for registration on a registration statement on Form S-3. However, we will not be required to effect a registration on Form S-3 if we have effected two such registrations within the twelve month period preceding the date of the request. Additionally, if we determine that it would be seriously detrimental to us and our stockholders to effect such a demand registration, we have the right to defer such registration, not more than twice in any twelve month period, for a period of up to 120 days.

Piggyback Registration Rights

After the completion of this offering, the holders of up to 38,714,587 shares of our common stock will be entitled to certain “piggyback” registration rights. If we propose to register the offer and sale of shares of our common stock under the Securities Act, all holders of these shares then outstanding can request that we include their shares in such registration, subject to certain marketing and other limitations, including the right of the underwriters to limit the number of shares included in any such registration statement under certain circumstances. As a result, whenever we propose to file a registration statement under the Securities Act, other than with respect to (1) a registration related to any employee benefit plan or a corporate reorganization or other transaction covered by Rule 145 promulgated under the Securities Act, (2) a registration in which the only stock being registered is common stock issuable upon conversion of debt securities also being registered, (3) a registration on any registration form that does not permit secondary sales or (4) a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of our common stock, the holders of these shares are entitled to notice of the registration and have the right, subject to certain limitations, to include their shares in the registration.

Expenses of Registration

We will pay all expenses relating to any demand registrations, Form S-3 registrations and piggyback registrations, subject to specified exceptions.

Termination

The registration rights terminate upon the earliest of (1) the date that is three years after the closing of this offering and (2) as to a given holder of registration rights, the date after the closing of this offering when such holder of registration rights can sell all of such holder's registrable securities during any ninety day period pursuant to Rule 144 promulgated under the Securities Act.

Anti-Takeover Effects of Certain Provisions of Delaware Law, Our Amended and Restated Certificate of Incorporation and Our Amended and Restated Bylaws

Certain provisions of Delaware law and certain provisions that will be included in our amended and restated certificate of incorporation and amended and restated bylaws summarized below may be deemed to have an anti-takeover effect and may delay, deter or prevent a tender offer or takeover attempt that a stockholder might consider to be in its best interests, including attempts that might result in a premium being paid over the market price for the shares held by stockholders.

Preferred Stock

Our amended and restated certificate of incorporation will contain provisions that permit our board of directors to issue, without any further vote or action by the stockholders, shares of preferred stock in one or more series and, with respect to each such series, to fix the number of shares constituting the series and the designation of the series, the voting rights (if any) of the shares of the series and the powers, preferences or relative, participation, optional and other special rights, if any, and any qualifications, limitations or restrictions, of the shares of such series.

Classified Board

Our amended and restated certificate of incorporation will provide that our board of directors is divided into three classes, designated Class I, Class II and Class III. Each class will be an equal number of directors, as nearly as possible, consisting of one-third of the total number of directors constituting the entire board of directors. The term of initial Class I directors shall terminate on the date of the 2019 annual meeting, the term of the initial Class II directors shall terminate on the date of the 2020 annual meeting, and the term of the initial Class III directors shall terminate on the date of the 2021 annual meeting. At each annual meeting of stockholders beginning in 2019, successors to the class of directors whose term expires at that annual meeting will be elected for a three-year term.

Removal of Directors

Our amended and restated certificate of incorporation will provide that stockholders may only remove a director for cause by a vote of no less than a majority of the shares present in person or by proxy at the meeting and entitled to vote.

Director Vacancies

Our amended and restated certificate of incorporation will authorize only our board of directors to fill vacant directorships.

No Cumulative Voting

Our amended and restated certificate of incorporation will provide that stockholders do not have the right to cumulate votes in the election of directors.

Special Meetings of Stockholders

Our amended and restated certificate of incorporation and amended and restated bylaws will provide that, except as otherwise required by law, special meetings of the stockholders may be called only by an officer at the request of a majority of our board of directors, by the Chair of our board of directors or by our Chief Executive Officer.

Advance Notice Procedures for Director Nominations

Our bylaws will provide that stockholders seeking to nominate candidates for election as directors at an annual or special meeting of stockholders must provide timely notice thereof in writing. To be timely, a stockholder's notice generally will have to be delivered to and received at our principal executive offices before notice of the meeting is issued by the secretary of the company, with such notice being served not less than 90 nor more than 120 days before the meeting. Although the amended and restated bylaws will not give the board of directors the power to approve or disapprove stockholder nominations of candidates to be elected at an annual meeting, the amended and restated bylaws may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed or may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect its own slate of directors or otherwise attempting to obtain control of the company.

Action by Written Consent

Our amended and restated certificate of incorporation and amended and restated bylaws will provide that any action to be taken by the stockholders must be effected at a duly called annual or special meeting of stockholders and may not be effected by written consent.

Amending our Certificate of Incorporation and Bylaws

Our amended and restated certificate of incorporation may be amended or altered in any manner provided by the Delaware General Corporation Law ("DGCL"). Our amended and restated bylaws may be adopted, amended, altered or repealed by stockholders only upon approval of at least majority of the voting power of all the then outstanding shares of the common stock, except for any amendment of the above provisions, which would require the approval of a two-thirds majority of our then outstanding common stock. Additionally, our amended and restated certificate of incorporation will provide that our bylaws may be amended, altered or repealed by the board of directors.

Authorized but Unissued Shares

Our authorized but unissued shares of common stock and preferred stock will be available for future issuances without stockholder approval, except as required by the listing standards of the , and could be utilized for a variety of corporate purposes, including future offerings to raise additional capital, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved common stock and preferred stock could render more difficult or discourage an attempt to obtain control of the company by means of a proxy contest, tender offer, merger or otherwise.

Exclusive Jurisdiction

Our amended and restated certificate of incorporation will provide that, unless we consent to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a

claim of breach of fiduciary duty, any action asserting a claim arising pursuant to the DGCL, any action regarding our 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. Our amended and restated certificate of incorporation will provide further that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act.

Business Combinations with Interested Stockholders

We are governed by Section 203 of the DGCL. Subject to certain exceptions, Section 203 of the DGCL prohibits a public Delaware corporation from engaging in a business combination (as defined in such section) with an "interested stockholder" (defined generally as any person who beneficially owns 15% or more of the outstanding voting stock of such corporation or any person affiliated with such person) for a period of three years following the time that such stockholder became an interested stockholder, unless (i) prior to such time the board of directors of such corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder; (ii) upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of such corporation at the time the transaction commenced (excluding for purposes of determining the voting stock of such corporation outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (A) by persons who are directors and also officers of such corporation and (B) 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 (iii) at or subsequent to such time the business combination is approved by the board of directors of such corporation and authorized at a meeting of stockholders (and not by written consent) by the affirmative vote of at least 66 2/3% of the outstanding voting stock of such corporation not owned by the interested stockholder.

Our amended and restated certificate of incorporation and our amended and restated bylaws will provide that we must indemnify our directors and officers to the fullest extent authorized by the DGCL. We are expressly authorized to, and do, carry directors' and officers' insurance providing coverage for our directors, officers and certain employees for some liabilities. We believe that these indemnification provisions and insurance are useful to attract and retain qualified directors and executive directors.

The limitation on liability and indemnification provisions in our certificate of incorporation and bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duty. These provisions may also have the effect of reducing the likelihood of derivative litigation against directors and officers, even though such an action, if successful, might otherwise benefit us and our stockholders. In addition, your investment may be adversely affected to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions.

Listing

We intend to apply to list our common stock on under the symbol "ALLK."

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is . The transfer agent and registrar's address is .

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our common stock, and although we expect that our common stock will be approved for listing on , we cannot assure investors that there will be an active public market for our common stock following this offering. We cannot predict what effect, if any, sales of our shares in the public market or the availability of shares for sale will have on the market price of our common stock. Future sales of substantial amounts of common stock in the public market, including shares issued upon exercise of outstanding options, or the perception that such sales may occur, however, could adversely affect the market price of our common stock and also could adversely affect our future ability to raise capital through the sale of our common stock or other equity-related securities of ours at times and prices we believe appropriate.

Upon completion of this offering, based on our shares outstanding as of December 31, 2017 and after giving effect to the automatic conversion of all outstanding shares of our convertible preferred stock, shares of our common stock will be outstanding, or shares of common stock if the underwriters exercise their option to purchase additional shares in full. All of the shares of common stock expected to be sold in this offering will be freely tradable without restriction or further registration under the Securities Act unless held by our "affiliates," as that term is defined in Rule 144 under the Securities Act. The remaining outstanding shares of our common stock will be deemed "restricted securities" as that term is defined under Rule 144. Restricted securities may be sold in the public market only if their offer and sale is registered under the Securities Act or if the offer and sale of those securities qualify for an exemption from registration, including exemptions provided by Rules 144 and 701 under the Securities Act, which are summarized below.

As a result of the lock-up agreements and market stand-off provisions described below and the provisions of Rules 144 or 701 and no exercise of the underwriters' option to purchase additional shares, the shares of our common stock that will be deemed "restricted securities" will be available for sale in the public market following the completion of this offering as follows:

- shares will be eligible for sale on the date of this prospectus; and
- shares will be eligible for sale upon expiration of the lock-up agreements and market stand-off provisions described below, beginning more than 180 days after the date of this prospectus.

Lock-Up Agreements and Market Stand-off Agreements

Our officers, directors and the holders of substantially all of our capital stock, options and warrants have entered into market stand-off agreements with us and have entered into or will enter into lock-up agreements with the underwriters, subject to certain exceptions, not to dispose of or hedge any of their common stock or securities convertible into or exchangeable for shares of common stock during the period from the date of this prospectus continuing through the date 180 days after the date of this prospectus, except with the prior consent of Goldman Sachs & Co. LLC and Jefferies LLC. See the section titled "Underwriting" for additional information.

Rule 144

Rule 144, as currently in effect, generally provides that, once we have been subject to the public company reporting requirements of Section 13 or Section 15(d) of the Exchange Act for at least 90 days, a stockholder who is not deemed to have been one of our affiliates at any time during the preceding 90 days and who has beneficially owned the shares of our capital stock proposed to be sold for at least six months is entitled to sell such shares in reliance upon Rule 144 without complying with the volume limitation, manner of sale or notice conditions of Rule 144. If such stockholder has beneficially owned the shares of our capital

stock proposed to be sold for at least one year, then such person is entitled to sell such shares in reliance upon Rule 144 without complying with any of the conditions of Rule 144.

Rule 144 also provides that a stockholder who is deemed to have been one of our affiliates at any time during the preceding 90 days and who has beneficially owned the shares of our common stock proposed to be sold for at least six months is entitled to sell such shares in reliance upon Rule 144 within any three month period beginning 90 days after the date of this prospectus a number of shares that does not exceed the greater of the following:

- 1% of the number of shares of our capital stock then outstanding, which will equal shares immediately after the completion of this offering, assuming no exercise by the underwriters of their option to purchase additional shares; or
- the average weekly trading volume of our common stock during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale.

Sales of our capital stock made in reliance upon Rule 144 by a stockholder who is deemed to have been one of our affiliates at any time during the preceding 90 days are also subject to the current public information, manner of sale and notice conditions of Rule 144.

Rule 701

Rule 701 generally provides that, once we have been subject to the public company reporting requirements of Section 13 or Section 15(d) of the Exchange Act for at least 90 days, a stockholder who purchased shares of our common stock pursuant to a written compensatory benefit plan or contract and who is not deemed to have been one of our affiliates at any time during the preceding 90 days may sell such shares in reliance upon Rule 144 without complying with the current public information or holding period conditions of Rule 144. Rule 701 also provides that a stockholder who purchased shares of our common stock pursuant to a written compensatory benefit plan or contract and who is deemed to have been one of our affiliates during the preceding 90 days may sell such shares under Rule 144 without complying with the holding period condition of Rule 144. However, all stockholders who purchased shares of our common stock pursuant to a written compensatory benefit plan or contract are required to wait until 90 days after the date of this prospectus before selling such shares pursuant to Rule 701.

Registration Rights

After the completion of this offering, the holders of up to 38,714,587 shares of our common stock will be entitled to certain rights with respect to the registration of such shares under the Securities Act. The registration of these shares of our common stock under the Securities Act would result in these shares becoming eligible for sale in the public market without restriction under the Securities Act immediately upon the effectiveness of such registration, subject to the Rule 144 limitations applicable to affiliates. See the section titled “Description of Capital Stock—Registration Rights” for a description of these registration rights.

Registration Statement

After the completion of this offering, we intend to file a registration statement on Form S-8 under the Securities Act to register all of the shares of our common stock subject to equity awards outstanding or reserved for issuance under our equity compensation plans. The shares of our common stock covered by such registration statement will be eligible for sale in the public market without restriction under the Securities Act immediately upon the effectiveness of such registration statement, subject to vesting restrictions, the conditions of Rule 144 applicable to affiliates, and any applicable market stand-off agreements and lock-up agreements. See the section titled “Executive Compensation—Employee Benefit and Stock Plans” for a description of our equity compensation plans.

MATERIAL U.S. FEDERAL INCOME AND ESTATE TAX CONSIDERATIONS FOR NON-U.S. HOLDERS OF OUR COMMON STOCK

The following is a summary of the material U.S. federal income tax consequences of the ownership and disposition of our common stock acquired in this offering by a "non-U.S. holder" (as defined below), but does not purport to be a complete analysis of all the potential tax considerations relating thereto. This summary is based upon the provisions of the United States Internal Revenue Code of 1986, as amended (the "Code"), Treasury Regulations promulgated thereunder, administrative rulings and judicial decisions, all as of the date hereof. These authorities may be changed, possibly retroactively, so as to result in U.S. federal income tax consequences different from those set forth below. We have not sought, and do not intend to seek, any ruling from the Internal Revenue Service ("IRS"), with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS or a court will agree with such statements and conclusions.

This summary also does not address the tax considerations arising under the laws of any non-U.S., state or local jurisdiction or under U.S. federal gift and estate tax rules, except to the limited extent set forth below. In addition, this discussion does not address tax considerations applicable to an investor's particular circumstances or to investors that may be subject to special tax rules, including, without limitation:

- banks, insurance companies, regulated investment companies, real estate investment trusts or other financial institutions;
- persons subject to the alternative minimum tax or the tax on net investment income;
- tax-exempt organizations;
- pension plans and tax-qualified retirement plans;
- controlled foreign corporations, passive foreign investment companies and corporations that accumulate earnings to avoid U.S. federal income tax;
- brokers or dealers in securities or currencies;
- traders in securities that elect to use a mark-to-market method of accounting for their securities holdings;
- persons that own, or are deemed to own, more than five percent of our capital stock (except to the extent specifically set forth below);
- certain former citizens or long-term residents of the United States;
- persons who hold our common stock as a position in a hedging transaction, "straddle," "conversion transaction" or other risk reduction transaction;
- persons who hold or receive our common stock pursuant to the exercise of any option or otherwise as compensation;
- persons who do not hold our common stock as a capital asset within the meaning of Section 1221 of the Code (generally, property held for investment); or
- persons deemed to sell our common stock under the constructive sale provisions of the Code.

In addition, if a partnership, entity or arrangement classified as a partnership or flow-through entity for U.S. federal income tax purposes holds our common stock, the tax treatment of a partner generally will depend on the status of the partner and upon the activities of the partnership or other entity. A partner in a partnership or other such entity that will hold our common stock should consult his, her or its own tax advisor regarding the tax consequences of the ownership and disposition of our common stock through a partnership or other such entity, as applicable.

You are urged to consult your tax advisor with respect to the application of the U.S. federal income tax laws to your particular situation, as well as any tax consequences of the purchase, ownership and disposition of our common stock arising under the U.S. federal gift or estate tax rules or under the laws of any state, local, non-U.S. or other taxing jurisdiction or under any applicable tax treaty.

Non-U.S. Holder Defined

For purposes of this discussion, you are a "non-U.S. holder" if you are a beneficial owner of our common stock that, for U.S. federal income tax purposes, is not a partnership or:

- an individual who is a citizen or resident of the United States;
- a corporation or other entity taxable as a corporation created or organized in the United States or under the laws of the United States or any political subdivision thereof, or otherwise treated as such for U.S. federal income tax purposes;
- an estate whose income is subject to U.S. federal income tax regardless of its source; or
- a trust (x) whose administration is subject to the primary supervision of a U.S. court and that has one or more U.S. persons who have the authority to control all substantial decisions of the trust or (y) that has made a valid election under applicable Treasury Regulations to be treated as a U.S. person.

Distributions

As described in the section titled "Dividend Policy," we have never declared or paid cash dividends on our common stock, and we do not anticipate paying any dividends on our common stock following the completion of this offering. However, if we do make distributions on our common stock, those payments 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. To the extent those distributions exceed both our current and our accumulated earnings and profits, the excess will constitute a return of capital and will first reduce your basis in our common stock, but not below zero, and then will be treated as gain from the sale of stock.

Subject to the discussions below on effectively connected income and Foreign Account Tax Compliance Act ("FATCA"), withholding, any dividend paid to you generally will be subject to U.S. federal withholding tax either at a rate of 30% of the gross amount of the dividend or such lower rate as may be specified by an applicable income tax treaty between the United States and your country of residence. In order to receive a reduced treaty rate, you must provide us with an IRS Form W-8BEN or W-8BEN-E or other appropriate version of IRS Form W-8 certifying qualification for the reduced rate. A non-U.S. holder of shares of our common stock eligible for a reduced rate of U.S. federal withholding tax pursuant to an income tax treaty may obtain a refund of any excess amounts withheld by filing an appropriate claim for refund with the IRS. If the non-U.S. holder holds our common stock through a financial institution or other agent acting on the non-U.S. holder's behalf, the non-U.S. holder will be required to provide appropriate documentation to the agent, which then will be required to provide certification to us or our paying agent, either directly or through other intermediaries.

Dividends received by you that are treated as effectively connected with your conduct of a U.S. trade or business (and, if required by an applicable income tax treaty, such dividends are attributable to a permanent establishment or fixed base maintained by you in the United States) are generally exempt from the 30% U.S. federal withholding tax, subject to the discussion below on backup withholding and FATCA withholding. In order to obtain this exemption, you must provide us with a properly executed IRS Form W-8ECI or other applicable IRS Form W-8 properly certifying such exemption. Such

effectively connected dividends, although not subject to U.S. federal withholding tax, are taxed at the same graduated rates applicable to U.S. persons, net of certain deductions and credits, subject to an applicable income tax treaty providing otherwise. In addition, if you are a corporate non-U.S. holder, dividends you receive that are effectively connected with your conduct of a U.S. trade or business may also be subject to a branch profits tax at a rate of 30% or such lower rate as may be specified by an applicable income tax treaty between the United States and your country of residence. You should consult your tax advisor regarding the tax consequences of the ownership and disposition of our common stock, including any applicable tax treaties that may provide for different rules.

Gain on Disposition of Common Stock

Subject to the discussion below regarding backup withholding and FATCA withholding, you generally will not be required to pay U.S. federal income tax on any gain realized upon the sale or other disposition of our common stock unless:

- the gain is effectively connected with your conduct of a U.S. trade or business (and, if an applicable income tax treaty so provides, the gain is attributable to a permanent establishment or fixed base maintained by you in the United States);
- you are an individual who is present in the United States for a period or periods aggregating 183 days or more during the calendar year in which the sale or disposition occurs and certain other conditions are met; or
- our common stock constitutes a United States real property interest by reason of our status as a “United States real property holding corporation,” or USRPHC, for U.S. federal income tax purposes at any time within the shorter of the five-year period preceding your disposition of, or your holding period for, our common stock.

We believe that we are not currently and will not become a USRPHC for U.S. federal income tax purposes, and the remainder of this discussion so assumes. However, because the determination of whether we are a USRPHC depends on the fair market value of our U.S. real property relative to the fair market value of our U.S. and worldwide real property plus our other business assets, there can be no assurance that we will not become a USRPHC in the future. Even if we become a USRPHC, however, as long as our common stock is regularly traded on an established securities market, your common stock will be treated as U.S. real property interests only if you actually (directly or indirectly) or constructively hold more than five percent of such regularly traded common stock at any time during the shorter of the five-year period preceding your disposition of, or your holding period for, our common stock.

If you are a non-U.S. holder described in the first bullet above, you will be required to pay tax on the gain derived from the sale (net of certain deductions and credits) under regular graduated U.S. federal income tax rates, and a corporate non-U.S. holder described in the first bullet above also may be subject to the branch profits tax at a 30% rate, or such lower rate as may be specified by an applicable income tax treaty. If you are an individual non-U.S. holder described in the second bullet above, you will be subject to tax at 30% (or such lower rate specified by an applicable income tax treaty) on the gain derived from the sale, which gain may be offset by U.S. source capital losses for the year, provided you have timely filed U.S. federal income tax returns with respect to such losses. You should consult your tax advisor regarding any applicable income tax or other treaties that may provide for different rules.

Federal Estate Tax

Our common stock beneficially owned by an individual who is not a citizen or resident of the United States (as defined for U.S. federal estate tax purposes) at the time of their death will generally

be includable in the decedent's gross estate for U.S. federal estate tax purposes. Such stock, therefore, may be subject to U.S. federal estate tax, unless an applicable estate tax treaty provides otherwise.

Backup Withholding and Information Reporting

Generally, we must report annually to the IRS the amount of dividends paid to you, your name and address and the amount of tax withheld, if any. A similar report will be sent to you. Pursuant to applicable income tax treaties or other agreements, the IRS may make these reports available to tax authorities in your country of residence.

Payments of dividends on or of proceeds from the disposition of our common stock made to you may be subject to information reporting and backup withholding at a current rate of 24% unless you establish an exemption, for example, by properly certifying your non-U.S. status on a properly completed IRS Form W-8BEN or W-8BEN-E or another appropriate version of IRS Form W-8. Notwithstanding the foregoing, backup withholding and information reporting may apply if either we or our paying agent has actual knowledge, or reason to know, that you are a U.S. person.

Backup withholding is not an additional tax; rather, the U.S. federal income tax liability of persons subject to backup withholding will be reduced by the amount of tax withheld. If withholding results in an overpayment of taxes, a refund or credit may generally be obtained from the IRS, provided that the required information is furnished to the IRS in a timely manner.

Foreign Account Tax Compliance Act (FATCA)

Provisions of the Code commonly referred to as FATCA, Treasury Regulations issued thereunder and official IRS guidance generally impose a U.S. federal withholding tax of 30% on dividends on, and the gross proceeds from a sale or other disposition of our common stock, paid to a "foreign financial institution" (as specially defined under these rules), 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 the 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 establishes an exemption. FATCA also generally imposes a U.S. federal withholding tax of 30% on dividends on and the gross proceeds from a sale or other disposition of our common stock paid to a "non-financial foreign entity" (as specially defined under these rules) unless such entity provides the withholding agent with a certification identifying the substantial direct and indirect U.S. owners of the entity, certifies that it does not have any substantial U.S. owners, or otherwise establishes an exemption.

The withholding obligations under FATCA generally apply to dividends on our common stock and to the payment of gross proceeds of a sale or other disposition of our common stock made on or after January 1, 2019. The withholding tax will apply regardless of whether the payment otherwise would be exempt from U.S. nonresident and backup withholding tax, including under the other exemptions described above. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes. An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this section. Prospective investors should consult with their own tax advisors regarding the application of FATCA withholding to their investment in, and ownership and disposition of, our common stock.

The preceding discussion of U.S. federal tax considerations is for general information only. It is not tax advice to investors in their particular circumstances. Each prospective investor should consult its own tax advisor regarding the particular U.S. federal, state and local and non-U.S. tax consequences of purchasing, holding and disposing of our common stock, including the consequences of any proposed change in applicable laws.

UNDERWRITING

Under the terms and subject to the conditions in an underwriting agreement to be dated the date of this prospectus, the underwriters named below, for whom Goldman Sachs & Co. LLC and Jefferies LLC are acting as representatives, have severally agreed to purchase, and we have agreed to sell to them, severally, the number of shares indicated below.

Name	Number of Shares
Goldman Sachs & Co. LLC	
Jefferies LLC	
Total	

The underwriting agreement provides that the obligations of the underwriters to purchase the shares included in this offering are subject to approval of legal matters by counsel and to other conditions. The underwriters are obligated to purchase all the shares (other than those covered by the option to purchase additional shares described below) if they purchase any of the shares.

Shares sold by the underwriters to the public will initially be offered at the initial public offering price set forth on the cover page of this prospectus. Any shares sold by the underwriters to securities dealers may be sold at a discount from the initial public offering price not to exceed $ per share. If all the shares are not sold at the initial offering price, the underwriters may change the offering price and the other selling terms. The offering of the shares by the underwriters is subject to receipt and acceptance and subject to the underwriters' right to reject any order in whole or in part.

If the underwriters sell more shares than the total number set forth in the table above, we have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase up to additional shares at the public offering price less the underwriting discount. To the extent the option is exercised, each underwriter must purchase a number of additional shares approximately proportionate to that underwriter's initial purchase commitment. Any shares issued or sold under the option will be issued and sold on the same terms and conditions as the other shares that are the subject of this offering.

We have agreed that, for a period of 180 days from the date of this prospectus, we will not, without the prior written consent of the representatives, offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale or otherwise transfer or dispose of, directly or indirectly, or file with or confidentially submit to the Securities and Exchange Commission a registration statement relating to, shares of our common stock, including but not limited to any options or warrants to purchase shares of our common stock or any securities that are convertible into or exchangeable for, or that represent the right to receive, shares of our common stock (collectively, "lock-up securities"), or publicly disclose the intention to make any such offer, sale, pledge, disposition or filing. We also will not, without the prior consent of the representatives, enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of lock-up securities. The foregoing restrictions do not apply to lock-up securities offered pursuant to employee stock option plans existing on, or upon the conversion or exchange of convertible or exchangeable securities outstanding as of, the date of the underwriting agreement.

Additionally, our officers and directors and the holders of substantially all of our equity securities have entered into lock-up agreements pursuant to which, for a period of 180 days from the date of this prospectus, we and they will not, without the prior written consent of the representatives, offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale or otherwise dispose of any lock-up securities. The foregoing is subject to several exceptions including:

(A) The following transfers of lock-up securities:

(i) as a bona fide gift or gifts;

(ii) to any member of the lock-up signatory's immediate family or to any trust or other legal entity for the direct benefit of the lock-up signatory or his or her immediate family, or if the signatory is a trust, to a trustor or beneficiary of the trust or to the estate of a beneficiary of such trust, provided that any such transfer shall not involve a disposition for value;

(iii) by will, other testamentary document or the laws of intestate succession;

(iv) in connection with a sale of the lock-up signatory's shares acquired in the offering (other than any issuer-directed shares of lock-up securities purchased in the offering by any of our officers or directors) or in the open market following the offering;

(v) if the lock-up signatory is a corporation, partnership, limited liability company, trust or other business entity, (A) to any of its affiliates, or to any investment fund or other entity controlling, controlled by, managing or managed by or under common control with the lock-up signatory or its affiliates or (B) as part of a distribution, transfer or disposition to its affiliates, directors, officers, employees, stockholders, partners, beneficiaries or other equity holders;

(vi) by surrender or forfeiture to us of shares of our common stock (A) in connection with "net" or "cashless" exercise or settlement of stock options, other rights to purchase lock-up securities or other awards expiring during the lock-up period, for payment of tax withholdings or remittance payments due as a result of the vesting, settlement or exercise of such awards pursuant to an equity incentive plan, stock purchase plan or other employee benefit plan or (B) upon the conversion of a convertible security of the Company in order to cover withholding tax obligations in connection with such conversion;

(vii) to us in connection with any contractual arrangement in effect on the date of this prospectus that provides for the repurchase of the lock-up signatory's equity securities by us in connection with the signatory's termination of service with us;

(viii) in connection with the conversion of any convertible security into shares of common stock in a manner consistent with the description of such securities contained in this prospectus, provided that such shares of common stock will remain subject to the provisions of the lock-up agreement;

(ix) to a nominee or custodian of a person or entity to whom a transfer would be permissible under (i), (ii), (iii) or (v) above;

(x) pursuant to a bona fide third-party tender offer, merger, consolidation or other similar transaction that is approved by our board of directors and made to all holders of our capital stock on substantially the same terms for holders of a majority of the voting power of our outstanding shares of capital stock involving a change of control of the Company;

(xi) in connection with conversion or reclassification of the outstanding preferred stock or other classes of common stock of the Company into shares of common stock as disclosed in this prospectus, provided that any such shares of common stock received upon such conversion or reclassification shall be subject to the terms of the lock-up agreement;

(xii) by operation of law, including pursuant to orders of a court, a qualified domestic order or in connection with a divorce settlement; or

(xiii) with the prior written consent of the representatives on behalf of the underwriters.

In the case of any transfer pursuant to (i), (ii), (iii), (v), (ix) and (xii) above, the donee, transferee or distributee must agree in writing to be bound by the lock-up restrictions. In the case of any transfer pursuant to (i), (ii), (iii), (iv) and (v) above, no filing under Section 16 of the Exchange Act or other public filing, report or announcement reporting a reduction in beneficial ownership of shares of common stock shall be required or voluntarily made during the lock-up period (other than a required filing on Form 5, Schedule 13G (or Schedule 13G/A) or Schedule 13F. In the case of (vi) above, if the lock-up signatory is required to file a report under Section 16 of the Exchange Act during the lock-up period, the lock-up signatory shall include a statement to the effect that such report relates to the circumstances described in (vi) above. In the case of (i), (ii), (iii), (v) and (ix) above, any transfer of lock-up securities must not involve a disposition for value. In the case of (vii) above, if the lock-up signatory is required to file a report under Section 16 of the Exchange Act during the lock-up period, the lock-up signatory shall include a statement in such report to the effect that such transfer is to the Company in connection with the repurchase of shares of common stock, as the case may be.

(B) Receipt from us of shares of common stock in connection with the exercise of options or other rights granted under a stock incentive plan or other equity award plan; or

(C) Entry into a written plan meeting the requirements of Rule 10b5-1 under the Exchange Act after the date of the lock-up agreement relating to the sale of the lock-up signatory's shares, provided that (i) the securities subject to such plan may not be transferred until after the lock-up period expires and (ii) no public announcement or filing under the Exchange Act shall be voluntarily made regarding the establishment of such plan during the lock-up period.

Prior to this offering, there has been no public market for our shares. Consequently, the initial public offering price for the shares was determined by negotiations between us and the representatives. Among the factors considered in determining the initial public offering price were our results of operations, our current financial condition, our future prospects, our markets, the economic conditions in and future prospects for the industry in which we compete, our management and currently prevailing general conditions in the equity securities markets, including current market valuations of publicly traded companies considered comparable to our company. We cannot assure you, however, that the price at which the shares will sell in the public market after this offering will not be lower than the initial public offering price or that an active trading market in our shares will develop and continue after this offering.

We intend to apply to list our common stock under the symbol "ALLK."

The following table shows the underwriting discounts and commissions that we and the selling stockholders are to pay to the underwriters in connection with this offering. These amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	No Exercise	Full Exercise
Per share	$	$
Total	$	$

We estimate that our total expenses of this offering will be approximately $. We will agree to reimburse the underwriters for expenses related to any applicable state securities filings and to the Financial Industry Regulatory Authority incurred by them in connection with this offering.

In connection with the offering, the underwriters may purchase and sell shares of common stock in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering, and a short position represents the amount of such sales that have not been covered by subsequent purchases. A “covered short position” is a short position that is not greater than the amount of additional shares for which the underwriters’ option described above may be exercised. The underwriters may cover any covered short position by either exercising their option to purchase additional shares or purchasing shares in the open market. In determining the source of shares to cover 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 additional shares pursuant to the option described above. “Naked” short sales are any short sales that create a short position greater than the amount of additional shares for which the option described above may be exercised. The underwriters must cover any such 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 common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of common stock made by the underwriters in the open market prior to the completion of the offering.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the representatives have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Purchases to cover short positions and stabilizing purchases, as well as other purchases by the underwriters for their own accounts, may have the effect of preventing or retarding a decline in the market price of the shares. They may also cause the price of the shares to be higher than the price that would otherwise exist in the open market in the absence of these transactions. The underwriters may conduct these transactions on the , in an over-the-counter market or otherwise. If the underwriters commence any of these transactions, they may discontinue them at any time.

The underwriters and their respective affiliates are full-service financial institutions engaged in various activities, which may include sales and trading, commercial and investment banking, advisory, investment management, investment research, principal investment, hedging, market making, financing and brokerage activities. Certain of the underwriters and their respective affiliates have, from time to time, performed, and may in the future perform, various financial advisory and investment banking services for us, for which they received or will receive customary fees and reimbursement of expenses.

In the ordinary course of their various business activities, the underwriters and their respective affiliates may purchase, sell or hold a broad array of instruments and actively trade debt and equity securities (or related derivative securities), commodities, currencies, credit default swaps and other financial instruments (including bank loans) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve or relate to our assets, securities and instruments (directly, as collateral serving other obligations or otherwise) and/or persons and entities with relationships with the issuer. The underwriters and 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 assets, securities or instruments and may at any time hold, or recommend to clients that they should acquire, long and/or short positions in such assets, securities and instruments.

We have agreed to indemnify the several underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the underwriters may be required to make because of any of those liabilities.

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a Relevant Member State), an offer to the public of our common stock may not be made in that Relevant Member State, except that an offer to the public in that Relevant Member State of our common stock may be made at any time under the following exemptions under the Prospectus Directive:

(a) to any legal entity which is a qualified investor as defined in the Prospectus Directive;

(b) to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the Representatives for any such offer; or

(c) in any other circumstances falling within Article 3(2) of the Prospectus Directive;

provided that no such offer of shares of our common stock shall result in a requirement for the publication by us or any underwriter of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an “offer to the public” in relation to our common stock 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 our common stock to be offered so as to enable an investor to decide to purchase our common stock, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression “Prospectus Directive” means Directive 2003/71/EC (as amended), including by Directive 2010/73/EU and includes any relevant implementing measure in the Relevant Member State.

This European Economic Area selling restriction is in addition to any other selling restrictions set out below.

United Kingdom

In the United Kingdom, this prospectus is only addressed to and directed at qualified investors who are (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the Order); or (ii) high net worth entities and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as “relevant persons”). Any investment or investment activity to which this prospectus relates is available only to relevant persons and will only be engaged with relevant persons. Any person who is not a relevant person should not act or relay on this prospectus or any of its contents.

Canada

Our common stock may be sold in Canada only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions, and Ongoing Registrant Obligations. Any resale of our common stock must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) 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 should refer to any applicable provisions of the securities legislation of the purchaser's province or territory of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering, provided that no such offer of shares of our common stock shall result in a requirement for the publication by us or any underwriter of a prospectus pursuant to Article 3 of the Prospectus Directive.

Hong Kong

Our common stock may not be offered or sold in Hong Kong by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32 of the Laws of Hong Kong), or Companies (Winding Up and Miscellaneous Provisions) Ordinance, or which do not constitute an invitation to the public within the meaning of the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong), or Securities and Futures Ordinance, (ii) to "professional investors" as defined in the Securities and Futures Ordinance and any rules made thereunder or (iii) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance, and no advertisement, invitation or document relating to the shares 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 in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares of common stock which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" in Hong Kong as defined in the Securities and Futures Ordinance and any rules made thereunder.

Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of our common stock may not be circulated or distributed, nor may our common stock be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor (as defined under Section 4A of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"), under Section 274 of the SFA, (ii) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, 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 (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to conditions set forth in the SFA.

Where our shares of common stock 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 in 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, the securities (as defined in Section 239(1) of the SFA) of that corporation shall not be transferable for six months after that corporation has acquired our common stock under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2)

of the SFA), (2) where such transfer arises from an offer in that corporation's securities pursuant to Section 275(1A) of the SFA, (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in Section 276(7) of the SFA or (6) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore ("Regulation 32").

Where our shares of common stock are subscribed or purchased under Section 275 of the SFA by a relevant person which is a trust (where the trustee is not an accredited investor (as defined in Section 4A of the SFA)) whose sole purpose is to hold investments and each beneficiary of the trust is an accredited investor, the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferable for six months after that trust has acquired our common stock under Section 275 of the SFA except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person (as defined in Section 275(2) of the SFA), (2) where such transfer arises from an offer that is made on terms that such rights or interest are acquired at a consideration of not less than S$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), (3) where no consideration is or will be given for the transfer, (4) where the transfer is by operation of law, (5) as specified in Section 276(7) of the SFA or (6) as specified in Regulation 32.

Japan

Our common stock has not been and will not be registered under the Financial Instruments and Exchange Act of Japan (Act No. 25 of 1948, as amended) (the "FIEA"). Our common stock may not be offered or sold, directly or indirectly, in Japan or to or for the benefit of any resident of Japan (including any person resident in Japan or any corporation or other entity organized under the laws of Japan) or to others for reoffering or resale, directly or indirectly, in Japan or to or for the benefit of any resident of Japan, except pursuant to an exemption from the registration requirements of the FIEA and otherwise in compliance with any relevant laws and regulations of Japan.

LEGAL MATTERS

The validity of the issuance of our common stock offered in this prospectus will be passed upon for us by Wilson Sonsini Goodrich & Rosati, Professional Corporation, Palo Alto, California. Davis Polk & Wardwell LLP, Menlo Park, California, is acting as counsel for the underwriters. Certain members of, and investment partnerships comprised of members of, and persons associated with, Wilson Sonsini Goodrich & Rosati, Professional Corporation, own an aggregate of 7,108 shares of our common stock.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our financial statements at December 31, 2016 and 2017, and for each of the two years in the period ended December 31, 2017, as set forth in their report. We have included our financial statements in the prospectus and elsewhere in the registration statement in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of our common stock offered by this prospectus. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement, as permitted by the rules and regulations of the SEC. For further information with respect to us and our common stock, we refer you to the registration statement, including the exhibits filed as a part of the registration statement. Statements contained in this prospectus concerning the contents of any contract or any other document is not necessarily complete. If a contract or document has been filed as an exhibit to the registration statement, please see the copy of the contract or document that has been filed. Each statement in this prospectus relating to a contract or document filed as an exhibit is qualified in all respects by the filed exhibit. You may obtain copies of this information by mail from the Public Reference Section of the SEC, 100 F Street, N.E., Room 1580, Washington, D.C. 20549, at prescribed rates or view them online. You may obtain information on the operation of the public reference rooms by calling the SEC at 1-800-SEC-0330. The SEC also maintains an Internet website that contains the registration statement of which this prospectus forms a part, as well as the exhibits thereto. These documents, along with future reports, proxy statements and other information about us, are available at the SEC's website, www.sec.gov.

As a result of this offering, we will become subject to the information and reporting requirements of the Securities Exchange Act of 1934, as amended, and, in accordance with this law, will file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information will be available for inspection and copying at the SEC's public reference facilities and the website of the SEC referred to above. We also maintain a website at www.allakos.com. Upon the completion 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 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.

INDEX TO FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of
Allakos Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Allakos Inc. (the "Company") as of December 31, 2016 and 2017, and the related statements of operations and comprehensive loss, statements of convertible preferred stock and stockholders' deficit and cash flows for the years then ended, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2016 and 2017, and the results of its operations and its cash flows for the years then ended in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2016.

Redwood City, California
April 10, 2018

ALLAKOS INC.

BALANCE SHEETS
(in thousands, except per share data)

	December 31, 2016	December 31, 2017	Pro Forma as of December 31, 2017 (Unaudited)
Assets			
Current assets:			
Cash and cash equivalents	$ 13,416	$ 85,207	$ 85,207
Prepaid expenses and other current assets	150	1,037	1,037
Total current assets	13,566	86,244	86,244
Property and equipment, net	333	445	445
Other long-term assets	277	340	340
Total assets	$ 14,176	$ 87,029	$ 87,029
Liabilities, convertible preferred stock and stockholders' equity (deficit)			
Current liabilities:			
Accounts payable	$ 1,041	$ 1,703	$ 1,703
Accrued expenses and other current liabilities	1,494	1,089	1,089
Total current liabilities	2,535	2,792	2,792
Debt facility	4,990	—	—
Other long-term liabilities	91	36	36
Total liabilities	7,616	2,828	2,828
Commitments (Note 6)			
Series A convertible preferred stock, $0.001 par value per share; 26,111 and 26,083 shares authorized as of December 31, 2016 and 2017, respectively; 26,083 shares issued and outstanding as of December 31, 2016 and 2017; aggregate liquidation preference of $46,950 as of December 31, 2016 and 2017; no shares issued and outstanding, pro forma (unaudited)	42,996	42,996	—
Series B convertible preferred stock, $0.001 par value per share; no shares and 12,632 shares authorized as of December 31, 2016 and 2017, respectively; no shares and 12,632 shares issued and outstanding as of December 31, 2016 and 2017; aggregate liquidation preference of $0 and $100,141 as of December 31, 2016 and 2017; no shares issued and outstanding, pro forma (unaudited)	—	99,973	—
Stockholders' equity (deficit):			
Common stock, $0.001 par value per share; 38,333 and 55,000 shares authorized as of December 31, 2016 and 2017, respectively; 2,006 and 2,643 shares issued and outstanding as of December 31, 2016 and 2017, respectively; 41,358 shares issued and outstanding, pro forma (unaudited)	2	3	41
Additional paid-in capital	584	1,803	144,734
Accumulated deficit	(37,022)	(60,574)	(60,574)
Total stockholders' equity (deficit)	(36,436)	(58,768)	84,201
Total liabilities, convertible preferred stock, and stockholders' equity (deficit)	$ 14,176	$ 87,029	$ 87,029

See accompanying notes to financial statements

ALLAKOS INC.

STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(in thousands, except per share data)

	Year Ended December 31,	
	2016	2017
Operating expenses		
Research and development	$ 14,672	$ 18,506
General and administrative	2,388	3,748
Total operating expenses	17,060	22,254
Loss from operations	(17,060)	(22,254)
Interest expense, net	(51)	(1,302)
Other income (expense), net	11	(287)
Loss before benefit from income taxes	(17,100)	(23,843)
Provision for (benefit from) income taxes	—	(291)
Net loss and comprehensive loss	$(17,100)	$(23,552)
Net loss per share:		
Basic and diluted	$ (10.43)	$ (11.63)
Weighted-average shares of common stock outstanding:		
Basic and diluted	1,640	2,025
Pro forma net loss per share:		
Basic and diluted (unaudited)		$ (0.81)
Pro forma weighted-average shares of common stock outstanding:		
Basic and diluted (unaudited)		29,216

See accompanying notes to financial statements

ALLAKOS INC.

STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(in thousands)

	Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount			
Balance as of December 31, 2015	15,528	$ 22,210	1,957	$ 2	$ 322	$ (19,922)	$ (19,598)
Issuance of Series A convertible preferred stock for cash, net of issuance costs of $8	10,555	18,991	—	—	—	—	—
Reclassification of preferred stock tranche liability upon issuance of Series A convertible preferred stock	—	1,795	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	182	—	182
Issuance of common stock warrants in connection with debt facility	—	—	—	—	24	—	24
Issuance of common stock upon exercise of stock options	—	—	49	—	20	—	20
Vesting of restricted common stock	—	—	—	—	36	—	36
Net loss	—	—	—	—	—	(17,100)	(17,100)
Balance as of December 31, 2016	26,083	$ 42,996	2,006	$ 2	$ 584	$ (37,022)	$ (36,436)
Issuance of Series B convertible preferred stock for cash, net of issuance costs of $168	11,668	92,331	—	—	—	—	—
Issuance of Series B convertible preferred stock upon conversion of convertible promissory notes	964	7,642	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	402	—	402
Repurchase of unvested restricted common stock	—	—	(42)	—	—	—	—
Issuance of common stock upon exercise of stock options	—	—	679	1	227	—	228
Vesting of restricted common stock	—	—	—	—	28	—	28
Recognition of beneficial conversion feature related to convertible promissory notes payable to related parties, net of tax benefit of $966	—	—	—	—	1,867	—	1,867
Reclassification of beneficial conversion feature related to convertible promissory notes payable to related parties, net of tax expense of $675	—	—	—	—	(1,305)	—	(1,305)
Net loss	—	—	—	—	—	(23,552)	(23,552)
Balance as of December 31, 2017	38,715	$142,969	2,643	$ 3	$ 1,803	$ (60,574)	$ (58,768)

See accompanying notes to financial statements

ALLAKOS INC.

STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31,	
	2016	2017
Cash flows from operating activities		
Net loss	$ (17,100)	$ (23,552)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	148	241
Stock-based compensation	182	402
Non-cash interest related to debt facility	29	101
Loss on extinguishment of debt facility	—	159
Non-cash interest related to convertible promissory notes payable to related parties	—	228
Amortization of beneficial conversion feature related to convertible promissory notes payable to related parties	—	853
Benefit from deferred income taxes	—	(291)
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	275	(637)
Accounts payable	(1,141)	510
Accrued expenses and other current liabilities	279	(432)
Other long-term assets	(250)	(150)
Net cash used in operating activities	(17,578)	(22,568)
Cash flows from investing activities		
Purchases of property and equipment	(234)	(264)
Net cash used in investing activities	(234)	(264)
Cash flows from financing activities		
Issuance of convertible preferred stock, net of issuance costs	18,991	92,331
Issuance of convertible promissory notes, net of issuance costs	—	7,414
Proceeds from debt facility, net of issuance costs	4,985	—
Repayment of debt facility	—	(5,250)
Proceeds from the exercise of stock options, net of repurchases	36	228
Payments for deferred financing costs	—	(100)
Net cash provided by financing activities	24,012	94,623
Net increase in cash and cash equivalents	6,200	71,791
Cash and cash equivalents, beginning of period	7,216	13,416
Cash and cash equivalents, end of period	$ 13,416	$ 85,207
Supplemental disclosures		
Cash paid for interest	39	228
Noncash investing and financing items		
Reclassification of preferred stock tranche liability upon settlement	1,795	—
Recognition of beneficial conversion feature related to convertible promissory notes payable to related parties, net of tax benefit	—	1,867
Reclassification of beneficial conversion feature related to convertible promissory notes payable to related parties, net of tax expense	—	1,305
Conversion of convertible promissory notes payable to related parties	—	7,642
Property and equipment purchased in accounts payable	—	89
Deferred initial public offering costs in accounts payable	—	63
Issuance of common stock warrants in connection with debt facility	24	—
Vesting of restricted common stock subject to repurchase	20	28

See accompanying notes to financial statements

ALLAKOS INC.
Notes to Financial Statements

1. Organization and Business

Allakos Inc. ("Allakos" or the "Company") was incorporated in the state of Delaware in March 2012. Allakos is a clinical stage biopharmaceutical company focused on the development of AK002 for the treatment of eosinophil and mast cell related diseases. The Company's primary activities to date have included establishing its facilities, recruiting personnel, conducting research and development of its product candidates and raising capital. The Company's operations are located in San Carlos, California.

Liquidity Matters

Since inception, the Company has incurred net losses and negative cash flows from operations. During the year ended December 31, 2017, the Company incurred a net loss of $23.6 million and used $22.6 million of cash in operations. At December 31, 2017, the Company had an accumulated deficit of $60.6 million and does not expect to experience positive cash flows from operating activities in the foreseeable future. The Company has financed its operations to date primarily through the sale and issuance of convertible preferred stock. Management expects to incur additional operating losses in the future as the Company continues to further develop, seek regulatory approval for and, if approved, commence commercialization of its product candidates. Accordingly, management recognizes the need to raise additional capital to fully implement its business plan. The Company intends to raise necessary capital privately or publicly through debt or equity financings, as well as through potential strategic alliances with third parties. The Company had $85.2 million of cash and cash equivalents at December 31, 2017. Based on the Company's business plans, management believes that this is sufficient to meet its obligations for at least the next twelve months from the issuance date of these financial statements.

2. Summary of Significant Accounting Policies

Basis of Presentation

The financial statements have been prepared in accordance with United States generally accepted accounting principles ("U.S. GAAP"). The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts and disclosures reported in the financial statements and accompanying notes.

Use of Estimates

Management uses significant judgment when making estimates related to common stock valuation and related stock-based compensation expense, convertible preferred stock valuation and intrinsic value of related beneficial conversion features, accrued expenses related to clinical trials and deferred tax valuation allowances. Management bases its estimates on historical experience and on various other assumptions that are believed 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. Actual results could differ from those estimates under different assumptions or conditions, and those differences could be material to the financial position and results of operations.

Unaudited Pro Forma Information

Immediately prior to the Company's initial public offering ("IPO"), all outstanding shares of convertible preferred stock will automatically convert into common stock. Unaudited pro forma balance

sheet information as of December 31, 2017 assumes the conversion of all outstanding convertible preferred stock into shares of common stock using the if-converted method. The shares of common stock issuable and the proceeds expected to be received in the initial public offering are excluded from such pro forma financial information.

Concentration of Credit Risk and Other Risks and Uncertainties

Financial instruments that potentially subject the Company to credit risk principally consist of cash and cash equivalents in the form of money market funds. These financial instruments are held in accounts at a single financial institution that management believes possesses high credit quality. Amounts on deposit with this financial institution have and will continue to exceed federally-insured limits. The Company has not experienced any losses on its cash deposits.

The Company is subject to a number of risks similar to that of other early-stage biopharmaceutical companies, including, but not limited to, the need to obtain adequate additional funding, possible failure of current or future clinical trials, its reliance on third parties to conduct its clinical trials, the need to obtain regulatory and marketing approvals for its product candidates, competitive developments, the need to successfully commercialize and gain market acceptance of the Company's product candidates, its right to develop and commercialize its product candidates pursuant to the terms and conditions of the licenses granted to the Company, protection of proprietary technology, the ability to make milestone, royalty or other payments due under licensing agreements, and the need to secure and maintain adequate manufacturing arrangements with third parties. If the Company does not successfully commercialize or partner its product candidates, it will be unable to generate product revenue or achieve profitability.

Cash and Cash Equivalents

The Company considers all highly liquid investments with a maturity date of purchase of three months or less to be cash equivalents. Cash equivalents consist primarily of money market funds and are stated at fair value.

Fair Value Measurements

The Company accounts for fair value of its financial instruments in accordance with Financial Accounting Standards Board (the "FASB") Accounting Standards Codification ("ASC") Topic No. 820, *Fair Value Measurements* ("ASC 820"). ASC 820 establishes a common definition for fair value, establishes a framework for measuring fair value and expands disclosures about such fair value measurements. Additionally, ASC 820 defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

The Company measures fair value based on a three-level hierarchy of inputs, of which the first two are considered observable and the last unobservable. Unobservable inputs reflect the Company's own assumptions about current market conditions. The three-level hierarchy of inputs is as follows:

Level 1 – Quoted prices in active markets for identical assets or liabilities.

Level 2 – Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

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Level 3 – Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of assets or liabilities.

To the extent that the valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. Accordingly, the degree of judgment exercised by the Company in determining fair value is greatest for instruments categorized in Level 3. A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

The carrying amounts reflected in the accompanying balance sheets for cash and cash equivalents and prepaid expenses and other current assets approximate their fair values, due to their short-term nature. The Company believes the terms of its debt facility were in line with market conditions for instruments with similar terms and maturity. As such, the carrying value of the Company's debt facility approximates its fair value.

Deferred Initial Public Offering Costs

Costs incurred in connection with the IPO primarily consist of direct incremental legal, printing and accounting fees. IPO costs are capitalized as incurred and will be offset against proceeds upon consummation of this offering. In the event the offering is terminated or abandoned, deferred IPO costs will be expensed in the period such determination has been made. As of December 31, 2017, there were $0.2 million of deferred IPO costs included in other long-term assets on the accompanying balance sheet. The Company did not have any deferred IPO costs as of December 31, 2016.

Lease Liability

The Company classifies the agreement for its office and laboratory facilities as an operating lease. Rent expense is recorded on a straight-line basis over the term of the lease. Differences that exist between cash rent payments and the recognition of rent expense, such as those resulting from rent abatements or contractual escalations of minimum lease payments, are recorded as a deferred rent liability and recognized as adjustments to rental expense on a straight-line basis over the term of the lease. The current portion of the deferred rent liability is included within accrued expenses and other current liabilities on the accompanying balance sheets. Noncurrent portion of deferred rent liability is classified as other long-term liabilities.

Term Loan Financing Costs

Expenses such as legal costs that are incurred upon issuance of debt, including term loans, are deferred and amortized over the term of the debt using the effective interest rate method. The costs are initially recorded as a reduction to the carrying value of the debt with amortization of the expense included in interest expense, net within the Company's statements of operations and comprehensive loss. Finance payments due to the lender at the end of the term of the loan are treated as deferred financing costs and are accreted to interest expense over the term of the loan using the effective interest rate method. Warrants to purchase common stock that are issued to the lender in connection with the debt financing are recorded as a reduction to the carrying value of the debt based on the estimated fair value of the financial instruments at issuance date. Upon extinguishment, the remaining amortization and accretion of the debt discount and deferred issuance costs are written off by recognizing a loss on extinguishment of debt within other income (expense), net on the Company's statements of operations and comprehensive loss.

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Property and Equipment, Net

Property and equipment are stated at cost, net of accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the assets. The useful lives of property and equipment are as follows:

Laboratory equipment – 3 years

Leasehold improvements – Shorter of remaining lease term or estimated life of the assets

Upon retirement or sale, the cost of disposed assets and their related accumulated depreciation are removed from the balance sheet. Any resulting gains or losses on dispositions of property and equipment are included as a component of other income (expense), net. Repair and maintenance costs that do not significantly add value to the property and equipment, or prolong its life, are charged to operating expense as incurred.

Impairment of Long-Lived Assets

Long-lived assets are reviewed for indications of possible impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability is measured by comparison of the carrying amounts to the future undiscounted cash flows attributable to these assets. An impairment loss is recognized to the extent an asset group is not recoverable, and the carrying amount exceeds the projected discounted future cash flows arising from such assets. There were no impairments of long-lived assets for the years ended December 31, 2016 and 2017.

Accrued Research and Development Costs

Service agreements with contract research organizations (“CROs”) and contract development and manufacturing organizations (“CDMOs”) comprise a significant component of the Company’s research and development activities. External costs for CROs and CDMOs are recognized as the services are incurred. The Company accrues for expenses resulting from obligations under agreements with its third parties for which the timing of payments does not match the periods over which the materials or services are provided to the Company. Accruals are recorded based on estimates of services received and efforts expended pursuant to agreements established with CROs, CDMOs and other outside service providers. These estimates are typically based on contracted amounts applied to the proportion of work performed and determined through analysis with internal personnel and external service providers as to the progress or stage of completion of the services.

The Company makes judgements and estimates in determining the accrual balance in each reporting period. In the event advance payments are made to a CRO, CDMO or other outside service provider, the payments are recorded within prepaid expenses and other current assets and subsequently recognized as research and development expense when the associated services have been performed. As actual costs become known, the Company adjusts its liabilities and assets. Inputs, such as the extent of services received and the duration of services to be performed, may vary from the Company’s estimates, which will result in adjustments to research and development expense in future periods. Changes in these estimates that result in material changes to the Company’s accruals could materially affect the Company’s results of operations. The Company’s historical estimates have not been materially different from actual amounts recorded.

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Convertible Debt Features

Beneficial conversion features embedded within the Company's convertible debt instruments are recognized at their intrinsic value at the commitment date. Intrinsic value is calculated as the difference between the effective conversion price and the fair value of the preferred stock into which the debt is convertible, multiplied by the number of shares of preferred stock into which the debt is convertible. The Company allocates a portion of the proceeds from issuance of the convertible debt to the beneficial conversion feature as a reduction to the carrying value of the debt, with the offset to additional paid-in capital. The resulting debt discount is amortized to interest expense through the stated maturity date of the convertible debt instrument using the effective interest method. Conversion of the debt to convertible preferred stock is accounted for as an extinguishment. Upon conversion, all unamortized discounts at the conversion date are recognized immediately as interest expense. The Company then allocates a portion of the reacquisition price to the repurchase of the beneficial conversion feature, as calculated by the intrinsic value of the conversion option at the extinguishment date. The residual amount, if any, is allocated to the convertible debt instrument. The gain or loss on extinguishment of the convertible debt instrument is measured as the difference between the retired debt's reacquisition price and carrying amount prior to extinguishment. Gains or losses resulting from convertible debt instruments issued to related parties are classified as capital contributions or distributions.

Preferred Stock Tranche Rights

Convertible preferred stock that includes features the Company has determined are not clearly and closely related to the equity host are bifurcated and accounted for separately as freestanding derivative assets or liabilities on the balance sheet at their estimated fair value. The Company historically recorded preferred stock derivative liabilities resulting from certain investors' rights to purchase from the Company, on the same terms as the Series A Preferred Stock Purchase Agreement executed in December 2012, additional shares of Series A convertible preferred stock in a second and third tranche. At initial recognition, the Company recorded these derivatives as an asset or liability on the balance sheets at their estimated fair value. The derivatives were subject to remeasurement at each balance sheet date, with changes in fair value recognized as a component of other income (expense), net on the Company's statements of operations and comprehensive loss. At the time of each tranche funding, the Company remeasured the derivative asset or liability, with the change in fair value recognized as a component of other income (expense), net and then reclassified the remaining value associated with the preferred stock derivative to Series A convertible preferred stock.

Convertible Preferred Stock

The Company records all shares of convertible preferred stock net of offering costs at their respective fair values on the dates of issuance. The convertible preferred stock is recorded outside of stockholders' deficit because, in the event of certain deemed liquidation events considered not solely within the Company's control, such as a merger, acquisition or sale of all or substantially all of the Company's assets, the convertible preferred stock will become redeemable at the option of the holders. In the event of a change of control of the Company, proceeds received from the sale of such shares will be distributed in accordance with the liquidation preferences set forth in the Company's Second Amended and Restated Certificate of Incorporation unless the holders of convertible preferred stock had previously converted their shares of convertible preferred stock into shares of common stock. The Company has not adjusted the carrying value of the convertible preferred stock to their redemption values, since it is uncertain whether or when a redemption event will occur.

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Segments

Operating segments are defined as components of an entity 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's chief operating decision maker, its Chief Executive Officer, views its operations and manages its business in one operating segment operating exclusively in the United States.

Research and Development Expense

Research and development costs are expensed as incurred. Research and development costs include, among others, consulting costs, salaries, benefits, travel, stock-based compensation, laboratory supplies and other non-capital equipment utilized for in-house research, allocation of facilities and overhead costs and external costs paid to third parties that conduct research and development activities on the Company's behalf. Amounts incurred in connection with license agreements are also included in research and development expense.

Advance payments for goods or services to be rendered in the future for use in research and development activities are deferred and included in prepaid expenses and other current assets. The deferred amounts are expensed as the related goods are delivered or the services are performed.

Patent Costs

The Company expenses patent application and related legal costs as incurred and classifies such costs as general and administrative expenses in the accompanying statements of operations and comprehensive loss.

Stock-Based Compensation

The Company accounts for its stock-based compensation in accordance with FASB ASC Topic 718, *Compensation—Stock Compensation* ("ASC 718"). ASC 718 requires all stock-based payments to employees and directors to be recognized as expense in the statements of operations and comprehensive loss based on their grant date fair values. For purposes of determining the estimated fair value of stock options granted to employees and directors, the Company uses the Black-Scholes option pricing model. The Black-Scholes option pricing model requires the input of certain assumptions that involve judgment, for which changes can materially affect the resulting estimates of fair value. The assumptions used to determine the fair value of stock options granted were as follows:

Expected volatility – Due to the lack of a public market for the Company's common stock and a lack of company-specific historical and implied volatility data, the Company has based its computation of expected volatility on the historical volatility of a representative group of public companies with similar characteristics to the Company, including stage of product development and life science industry focus. The historical volatility is calculated based on a period of time commensurate with the expected term assumption.

Expected term – The Company determines the expected term in accordance with the "simplified method" described by SEC Staff Accounting Bulletin No. 107, *Share-Based Payment*, as it does not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected term.

Risk-free interest rate – The Company bases the risk-free interest rate on United States Treasury securities with terms consistent to the expected term of the stock option being valued.

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Expected dividends – The expected dividend yield is assumed to be zero as the Company has never paid dividends and has no current plans to pay any dividends on its common stock.

The Company uses historical data to estimate pre-vesting forfeitures and records stock-based compensation expense only for those awards expected to vest. To the extent that actual forfeitures differ from estimates, the difference is recorded as a cumulative adjustment in the period the estimates are revised. The Company expenses the fair value of its stock-based compensation awards to employees on a straight-line basis over the requisite service period, which is generally the vesting period.

Estimated Fair Value of Common Stock Warrants Issued with Debt

The Company estimates the fair values of common stock warrants using an option pricing model based on inputs as of the valuation measurement dates, including the fair value of the Company's common stock, the estimated volatility of the price of the Company's common stock, the expected term of the warrants and the risk-free interest rates.

Income Taxes

Income taxes are accounted for using an asset and liability approach that requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the financial statement and tax bases of assets and liabilities at the applicable enacted tax rates. A valuation allowance is provided when it is more likely than not that some portion or all of the deferred tax assets will not be realized. The Company evaluates the realizability of its deferred tax assets by assessing its valuation allowance and by adjusting the amount of such allowance, if necessary.

The Company recognizes the tax benefit from tax positions only if it is more likely than not that the tax positions will be sustained upon examination by tax authorities, based on the technical merits of the position. The tax benefit is measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement.

The Company recognizes interest and penalties related to income taxes as a component of other income (expense), net in the statements of operations and comprehensive loss.

Comprehensive Loss

Comprehensive loss is defined as a change in equity during a period from transactions and other events and circumstances from nonowner sources. For all periods presented, there have been no items qualifying as other comprehensive loss and therefore, the Company's comprehensive loss was the same as its reported net loss.

Net Loss per Share

The Company calculates basic net loss per share by dividing the net loss attributable to common stockholders by the weighted-average shares of common stock outstanding during the period, without consideration for potentially dilutive securities. The Company calculates diluted net loss per share after giving consideration to all potentially dilutive securities outstanding during the period using the treasury-stock and if-converted methods, except where the effect of including such securities would be

antidilutive. Because the Company has reported net losses since inception, the effect from potentially dilutive securities would have been anti-dilutive and therefore has been excluded from the calculation of diluted net loss per share.

Basic and diluted net loss per share was calculated as follows (in thousands, except per share data):

	Year Ended December 31,	
	2016	2017
Numerator:		
Net loss	$(17,100)	$(23,552)
Denominator:		
Weighted-average shares of common stock outstanding, basic and diluted	1,640	2,025
Net loss per share, basic and diluted	$ (10.43)	$ (11.63)

The following table sets forth the potentially dilutive securities that have been excluded from the calculation of diluted net loss per share due to their anti-dilutive effect for the periods indicated (in thousands):

	Year Ended December 31,	
	2016	2017
Series A convertible preferred stock	26,083	26,083
Series B convertible preferred stock	—	12,632
Options to purchase common stock	3,403	6,105
Warrants to purchase common stock	60	60
Unvested restricted common stock	256	130
Total	29,802	45,010

Unaudited Pro Forma Net Loss per Share

The unaudited pro forma net loss per share for the year ended December 31, 2017 was computed using the weighted-average number of shares of common stock outstanding during the period, after giving effect to the conversion of all outstanding shares of convertible preferred stock into shares of common stock, as if such conversion had occurred at the later of their issuance date or the beginning of the period. The unaudited pro forma basic and diluted net loss per share amounts do not include shares of common stock expected to be sold as part of this offering.

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Unaudited pro forma net loss per share for the year ended December 31, 2017 was calculated as follows (in thousands, except per share data):

Numerator:	
Net loss	$(23,552)
Denominator:	
Weighted-average shares of common stock outstanding, basic and diluted	2,025
Adjustment for assumed conversion of convertible preferred stock	27,191
Pro forma weighted-average shares of common stock outstanding, basic and diluted	29,216
Pro forma net loss per share, basic and diluted	$ (0.81)

Foreign Currency Transactions

The Company is party to multiple contract manufacturing and clinical research agreements for which services to be performed are denominated in foreign currencies other than the United States Dollar. The Company records gains and losses attributable to fluctuations in foreign currencies as a component of other income (expense), net on the accompanying statements of operations and comprehensive loss.

Recent Accounting Pronouncements

In February 2016, the FASB issued Accounting Standards Update ("ASU") No. 2016-02, *Leases* ("ASU 2016-02"). ASU 2016-02 requires an entity to recognize assets and liabilities arising from a lease for both financing and operating leases. ASU 2016-02 will also require new qualitative and quantitative disclosures to help investors and other financial statement users better understand the amount, timing and uncertainty of cash flows arising from leases. For public entities, ASU 2016-02 is effective for fiscal years beginning after December 15, 2018. Early adoption is permitted. The Company has not yet determined the potential effects of ASU 2016-02 on its financial statements but does not expect it to have a significant impact.

In March 2016, the FASB issued ASU No. 2016-09, *Compensation – Stock Compensation* ("ASU 2016-09"), which simplifies the accounting for employee stock-based transactions. The amendments in this ASU 2016-09 cover such areas as the recognition of excess tax benefits and deficiencies, the classification of those excess tax benefits on the statement of cash flows, an accounting policy election for forfeitures, the amount an employer can withhold to cover income taxes and still qualify for equity classification and the classification of those taxes paid on the statement of cash flows. For public entities, ASU 2016-09 was effective for fiscal years, and interim periods within those years, beginning after December 15, 2016. Early adoption is permitted. The Company early adopted ASU 2016-09 effective January 1, 2017 electing to continue its current policy of estimating forfeitures. The adoption of ASU 2016-09 did not have a material effect on the Company's financial statements or related disclosures.

In August 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows: Classification of Certain Cash Receipts and Cash Payments* ("ASU 2016-15"). ASU 2016-15 is intended to address how certain cash receipts and cash payments, including the prepayment and extinguishment of debt, are presented and classified in the statement of cash flows. This update is intended to reduce the existing diversity in practice. For public entities, ASU 2016-15 is effective for fiscal years beginning

after December 15, 2017, and interim periods within those fiscal years. Early adoption is permitted. Early adoption of ASU 2016-15 effective January 1, 2017 did not have a material effect on the Company's financial statements.

In November 2016, the FASB issued ASU No. 2016-18, *Statement of Cash Flows: Restricted Cash* ("ASU 2016-18"). ASU 2016-18 amends the classification and presentation of changes in restricted cash or restricted cash equivalents in the statement of cash flows. ASU 2016-18 is effective for public business entities for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years. Early adoption is permitted. The Company is currently evaluating the impact the adoption of ASU 2016-18 will have on its financial statements but does not expect it to have a material impact.

3. Fair Value Measurements

The Company measures and reports certain financial instruments as assets and liabilities at fair value on a recurring basis. The Company's financial assets measured at fair value on a recurring basis were as follows (in thousands):

	December 31, 2016			
	Level 1	Level 2	Level 3	Total
Cash equivalents	$11,461	$ —	$ —	$11,461
Total financial assets	$11,461	$ —	$ —	$11,461

	December 31, 2017			
	Level 1	Level 2	Level 3	Total
Cash equivalents	$82,526	$ —	$ —	$82,526
Total financial assets	$82,526	$ —	$ —	$82,526

Financial assets included in cash equivalents are primarily comprised of money market funds. The Company measures the fair value of its money market funds using quoted prices in active markets for identical assets.

The final closing of the Company's Series A convertible preferred stock in January 2016 resulted in the reclassification of the associated preferred stock derivatives to convertible preferred stock and, as such, no liabilities were outstanding at December 31, 2016 or 2017. Historically, the Company estimated the fair value of its preferred stock tranche liabilities at the time of issuance with subsequent remeasurement at each reporting date through settlement. Fair value was calculated using an option pricing model that required significant unobservable inputs supported by little or no market activity. Assumptions include timing and likelihood of future financings, expected volatility, expected life, probabilities of technical success and risk-free interest rate. Changes to these assumptions may result in a significant impact to estimated fair value reported.

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The following table provides a reconciliation of all liabilities measured at fair value using Level 3 significant unobservable inputs during the year ended December 31, 2016 (in thousands):

	Tranche liability
Fair value at the beginning of the year	$ 1,795
Reclassification to convertible preferred stock	(1,795)
Fair value at the end of the year	$ —

The Company evaluates transfers between levels at the end of each reporting period. There were no transfers of assets or liabilities between levels during the years ended December 31, 2016 and 2017.

At December 31, 2016 the fair value approximated the carrying value of the Company's debt facility.

4. Balance Sheet Components and Supplemental Disclosures

Property and Equipment, Net

Property and equipment, net, consisted of the following (in thousands):

	December 31,	
	2016	2017
Laboratory equipment	$ 596	$ 949
Leasehold improvements	55	55
	651	1,004
Less accumulated depreciation	(318)	(559)
Property and equipment, net	$ 333	$ 445

Depreciation and amortization expense for the years ended December 31, 2016 and 2017 was $0.1 million and $0.2 million, respectively.

Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consisted of the following (in thousands):

	December 31,	
	2016	2017
Accrued outside professional services	$ 445	$ 787
Accrued compensation	1,007	265
Other current liabilities	42	37
Total	$1,494	$1,089

5. Debt Facility

In June 2016, the Company entered into a Loan and Security Agreement with a financial institution, providing for term loans to the Company, in two tranches for an aggregate principal amount

of $5.0 million. Interest on the term loans was calculated at a floating per annum rate equal to the prime rate reported in The Wall Street Journal plus one quarter of one percent (0.25%). Upon execution of the agreement, the Company had immediate access to borrow up to $2.5 million in principal. The remaining $2.5 million in principal would be made available to the Company on or prior to December 31, 2016, subject to the satisfaction of certain borrowing conditions including the achievement of certain pre-defined clinical development milestones. In July 2016, the Company drew down an initial term loan of $2.5 million. Subsequently, in December 2016, the Company drew down the remaining $2.5 million term loan. During 2017 this debt facility was fully repaid and terminated.

The Company incurred upfront costs of $15,000 to issue the debt facility which were classified as a discount to the carrying value of the term loans included on the accompanying balance sheet at December 31, 2016. Final payments due to the lender for facility fees of $0.2 million were treated as deferred issuance costs and accreted to interest expense over the term of the loans. Amortization of the upfront issuance costs and accretion of the deferred issuance costs was calculated using the effective interest method.

Additionally, as part of the Loan and Security Agreement, the Company agreed to issue the financial institution warrants to purchase shares of its common stock upon each draw of the term loans. During the year ended December 31, 2016, the Company issued the financial institution warrants to purchase a total of 59,522 shares of common stock at a weighted average exercise price of $0.49 per share. The common stock warrants were immediately exercisable upon issuance and shall remain outstanding for a period of ten years from the date of issuance. Fair value of the common stock warrants totaling $24,000 was recorded as a reduction to the carrying value of the loans and amortized to interest expense over the remaining term of the loans using the effective interest method. The initial fair value of the warrants was determined using the Black-Scholes option pricing model including weighted average assumptions for expected volatility of 80.0%, an expected life equal to the contractual term of the warrants of 10 years and a risk-free interest rate of 2.0%. All warrants to purchase common stock were unexercised as of December 31, 2017.

Loss on Extinguishment

In connection with the prepayment of the term loans in December 2017, the Company recognized a loss on extinguishment of debt totaling $0.2 million. This amount consisted of a $50,000 prepayment penalty, a write-off of $17,000 of unamortized discount and the write-off of $92,000 of unamortized debt issuance costs. The loss on extinguishment of debt was recorded as other income (expense), net on the accompanying statements of operations and comprehensive loss. The write-offs of unamortized discount and unamortized debt issuance costs represent a non-cash adjustment to reconcile net income to net cash used in operating activities on the statement of cash flows.

6. Commitments and Contingencies

Operating Lease Obligations

The Company's operating lease obligations primarily relate to its leased office and laboratory space under a noncancelable operating lease expiring in June 2019. The lease agreement, which was amended in August 2015, includes two renewal provisions allowing the Company to extend the lease for an additional period of one year each. The amended lease agreement includes a rent abatement and escalation clauses for increased rent over the lease term. In addition to the minimum future lease commitments presented below, the lease requires the Company to pay property taxes, insurance,

maintenance and repair costs. Rent expense is recognized using the straight-line method over the term of the lease. The Company records a deferred rent liability calculated as the difference between rent expense and cash rental payments. The current portion of the liability is included within accrued expenses and other current liabilities on the balance sheets. The remaining non-current portion is classified in other long-term liabilities.

Future minimum lease payments required under operating leases are as follows (in thousands):

Fiscal Year Ending December 31,	
2018	$414
2019	210
Total	$624

In November 2015, the Company entered into a sublease agreement with a third party for a portion of the Company's facilities in San Carlos, California. The sublease has a month-to-month term and can be terminated by either party with a thirty-day written notice. Sublease payments owed are recorded as an offset to the Company's rent expense.

Net rent expense was $0.4 million and $0.5 million for the years ended December 31, 2016 and 2017, respectively.

Purchase Obligations

The Company has entered into contractual agreements with various research and development organizations and suppliers in the normal course of its business. All contracts are terminable, with varying provisions regarding termination. If a contract were to be terminated, the Company would only be obligated for the products or services that the Company had received at the time of termination as well as any non-cancelable minimum payments contractually agreed upon prior to the effective date of termination. In the case of terminating a clinical trial agreement with an investigational site conducting clinical activities on behalf of the Company, the Company would also be obligated to provide continued support for appropriate safety procedures through completion or termination of the associated study. At December 31, 2017, the Company had total minimum purchase obligations of $0.9 million, all of which are payable during the year ending December 31, 2018.

In-Licensing Agreements

The Company has entered into exclusive and non-exclusive, royalty bearing license agreements with third-parties for certain intellectual property. Under the terms of the license agreements, the Company is obligated to pay milestone payments upon the achievement of specified clinical, regulatory and commercial milestones. Actual amounts due under the license agreements will vary depending on factors including, but not limited to, the number of products developed and the Company's ability to further develop and commercialize the licensed products. The Company is also subject to future royalty payments based on sales of the licensed products. In-licensing payments to third parties for milestones are recognized as research and development expense in the period of achievement.

The Company recognized $0.3 million of research and development expense related to the achievement of milestones in the year ended December 31, 2016. The Company did not recognize any milestone expense in the year ended December 31, 2017. Milestone payments are not creditable against royalties. As of December 31, 2017, the Company has not incurred any royalty liabilities related to its license agreements, as product sales have not yet commenced.

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Exclusive License Agreement with The Johns Hopkins University

In December 2013, the Company entered into a license agreement with The Johns Hopkins University ("JHU") for a worldwide exclusive license to develop, use, manufacture and commercialize covered product candidates including AK001 and AK002, which was amended in September 30, 2016. Under the terms of the agreement, the Company has made upfront and milestone payments of $0.3 million as of December 31, 2017 and may be required to make aggregate additional milestone payments of up to $4.0 million. The Company also issued to JHU 111,111 shares of common stock. In addition to milestone payments, the Company is also subject to market rate royalties to JHU based on future net sales of each licensed therapeutic product candidate by the Company and its affiliates and sublicensees, with up to a low six digit dollar minimum annual royalty payment.

Non-exclusive License Agreement with BioWa Inc. and Lonza Sales AG

In October 2013, the Company entered into a tripartite agreement with BioWa Inc. ("BioWa"), and Lonza Sales AG ("Lonza"), for the non-exclusive worldwide license to develop and commercialize product candidates including AK002 that are manufactured using a technology jointly developed and owned by BioWa and Lonza. Under the terms of the agreement, the Company has made milestone payments of $0.1 million as of December 31, 2017 and the Company may be required to make aggregate additional milestone payments of up to $41.3 million. In addition to milestone payments, the Company is also subject to minimum annual commercial license fees of $40,000 per year to BioWa until such time as BioWa receives royalty payments, as well as low single-digit royalties to BioWa and to Lonza. Royalties are based on future net sales by the Company and its affiliates and sublicensees and vary dependent on Lonza's participation as sole manufacturer for commercial production.

Indemnification Agreements

The Company has entered into indemnification agreements with certain directors and officers that require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors or officers. To date, no such matters have arisen and the Company does not believe that the outcome of any claims under indemnification arrangements will have a material adverse effect on its financial positions, results of operations or cash flows. Accordingly, the Company has not recorded a liability related to such indemnifications at December 31, 2017.

7. Convertible Promissory Notes Payable to Related Parties, Net

In August 2017, the Company entered into a note purchase agreement with existing investors as related parties to raise proceeds of up to $15.0 million via the issuance of convertible promissory notes (the "Notes"). The Notes bore interest at 6% per annum and were subject to automatic conversion upon a subsequent qualified financing event. Additional terms included within the note purchase agreement included an option at the election of the holder, upon maturity, to convert all outstanding principal and accrued interest into Series A convertible preferred stock at a fixed price per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization. The Company determined this option represented a beneficial conversion feature ("BCF") at the date of issuance as the fair value of the securities into which the Notes were convertible upon maturity was greater than the effective conversion price on the date of issuance.

During the year ended December 31, 2017, the Company issued $7.5 million in Notes. The Company recorded the Notes at the principal amount received, net of transaction costs of $86,000,

with a portion of the proceeds being allocated to the BCF relative to its intrinsic value of $2.8 million. The Company calculated the intrinsic value of the BCF as the difference between the fair value of the underlying Series A convertible preferred stock and the effective conversion price embedded in the Notes. The BCF was initially recorded as an increase to additional paid-in capital with the offset recorded as a discount on the Notes.

During the year ended December 31, 2017, in addition to stated interest of $0.1 million, the Company recognized non-cash interest expense of $0.9 million associated with the amortization of the discounts, issuance costs and BCF. The amortization schedule was calculated using the effective interest method through August 2018, the contractual maturity of the Notes.

In November 2017, the Notes were redeemed contemporaneously with the Company's Series B convertible preferred stock financing. The aggregate of the outstanding principal and accrued interest balance of $7.6 million was converted into 963,863 shares of Series B convertible preferred stock based on the Series B convertible preferred stock fair value. The redemption of the Notes was accounted for as a debt extinguishment with a portion of the reacquisition price allocated to the BCF and total unamortized debt discount of $60,000 written off to interest expense. The amount allocated to reacquire the BCF was measured using the intrinsic value of the conversion option at the extinguishment date and reflected as a reduction to equity. As a result, the amount allocated to reacquire the Notes was less than the carrying value of the Notes which resulted in a deemed capital contribution received from related parties of $0.9 million.

8. Convertible Preferred Stock and Stockholders' Deficit

In December 2012, the Company entered into the Series A Preferred Stock Purchase Agreement with investors under which the Company agreed to sell and investors agreed to purchase up to 17,777,772 shares of Series A convertible preferred stock at a purchase price of $1.80 per share. Upon execution of the agreement, the Company issued 5,555,554 shares of Series A convertible preferred stock for net cash proceeds of $9.8 million (the "Initial Closing").

In August 2014, the Company and its investors amended the Series A Preferred Stock Purchase Agreement, pursuant to which the Company agreed to sell and investors agreed to purchase up to an additional 5,555,558 shares of Series A convertible preferred stock under the same terms as the original agreement. From August 2014 through September 2014, the Company issued 8,333,334 shares of Series A convertible preferred stock at a purchase price of $1.80 per share for net cash proceeds of $14.9 million (the "Second Closings").

In March 2015, the Company and its investors amended the Series A Preferred Stock Purchase Agreement a second time, pursuant to which the Company agreed to sell and investors agreed to purchase up to an additional 2,777,786 shares of Series A convertible preferred stock under the same terms as the original agreement. Concurrent with the second amendment, the Company issued 1,638,637 shares of Series A convertible preferred stock at a purchase price of $1.80 per share for net cash proceeds of $2.9 million (the "Additional Second Closings").

In January 2016, the Company issued 10,555,556 shares of Series A convertible preferred stock at a purchase price of $1.80 per share for net cash proceeds of $19.0 million (the "Third Closings").

On November 30, 2017, the Company entered into the Series B Preferred Stock Purchase Agreement with existing as well as new investors for the issuance of up to 12,631,506 shares of Series

ALLAKOS INC.
Notes to Financial Statements

B convertible preferred stock at a purchase price of $7.93 per share. Upon the execution of the agreement, the Company issued 11,667,643 shares of Series B convertible preferred stock for net cash proceeds of $92.3 million and 963,863 shares issued upon the conversion of outstanding convertible promissory notes to related parties, including accrued interest, in the amount of $7.6 million.

Series A Preferred Stock Tranche Rights

Included in the terms of the original and amended Series A Preferred Stock Purchase Agreement were certain rights (the "Tranche Rights") that provided purchasers the right to purchase and the Company the right to sell, additional shares of Series A convertible preferred stock at the original purchase price of $1.80 per share. The Company's right was contingent upon the Company's Board of Directors' approval of the achievement of certain pre-defined performance milestones.

The Company concluded that the Tranche Rights met the definition of a freestanding financial instrument, as they were legally detachable and separately exercisable from the Series A convertible preferred stock. Therefore, the Company allocated the proceeds received from the issuance of shares under the Series A Preferred Stock Purchase Agreement between the Tranche Rights and the Series A convertible preferred stock. As the Series A convertible preferred stock was redeemable at the election of the holders of the then-outstanding shares, the Tranche Rights were classified as an asset or liability under FASB ASC Topic 480, *Distinguishing Liabilities from Equity*. Upon each funding, the Company first allocated the proceeds received to the Tranche Rights, based on their fair value at the date of issuance, with the remaining proceeds being allocated to the Series A convertible preferred stock. The estimated fair value of the Tranche Rights was determined using an option pricing model with changes in fair value at each remeasurement date recognized as a component of other income (expense), net in the statements of operations and comprehensive loss. At the time of each funding, the Company remeasured the asset or liability, with the final change in fair value recognized as a component of other income (expense), net and reclassified the remaining value associated with the Tranche Rights reclassified to Series A convertible preferred stock.

All derivative assets and liabilities associated with the Tranche Rights were settled upon the final issuance of Series A convertible preferred stock in January 2016.

Convertible Preferred Stock Terms

The Company's Second Amended and Restated Certificate of Incorporation filed on November 30, 2017 increased the total number of shares authorized for issuance from 82,994,462 shares to 93,714,587 shares. Of these shares, 38,714,587 shares are designated as preferred stock including 26,083,081 Series A shares and 12,631,506 Series B shares.

Dividends – Holders of shares of convertible preferred stock shall be entitled to receive noncumulative dividends prior to, and in preference to any declaration or payment of any dividend on the common stock at the rate of 8% of the original issue price of the applicable series of convertible preferred stock, when and if declared by the Company's Board of Directors. After payment of dividends to the holders of shares of convertible preferred stock, any additional dividends are to be paid equally among the holders of convertible preferred stock and common stock on an as converted basis. Through December 31, 2017, no dividends had been declared.

Liquidation Preference – In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company, the holders of Series B convertible preferred stock shall be entitled to

receive, prior and in preference to any distribution from the assets of the Company to the holders of Series A convertible preferred stock or common stock, a per-share amount equal to the sum of the original issue price of Series B convertible preferred stock plus all accrued but unpaid dividends. After the payment of the full Series B liquidation preference, holders of the Series A convertible preferred stock shall be entitled to receive, prior and in preference to any distribution from the assets of the Company to the holders of common stock, a per-share amount equal to the sum of the original issue price of Series A convertible preferred stock plus all accrued but unpaid dividends. After the payment of all preferential amounts required to be paid upon liquidation to the holders of the convertible preferred stock, the remaining assets will be distributed to holders of the common stock on a pro-rata basis.

Conversion – Shares of convertible preferred stock are convertible at the holder's option into shares of common stock, on a share-for-share basis, using a conversion rate determined by dividing the original issue price by the conversion price. The conversion rate may be adjusted upon certain events and for certain dilutive issuances, splits and combinations. The initial conversion price for the Series A and Series B convertible preferred stock is $1.80 and $7.93, respectively. Each share of convertible preferred stock will be automatically converted into common stock, at its then applicable conversion rate, upon (i) the closing of an underwritten public offering of the Company's common stock that provides not less than $50 million of gross proceeds at an offering price of not less than $7.93 per share of common stock, as adjusted for recapitalization or (ii) the written request for conversion by the holders of at least a majority of the convertible preferred stock, voting together on an as converted basis.

Voting Rights – Each share of convertible preferred stock has the same voting rights as the number of shares of common stock into which it is convertible and vote together with the holders of common stock as a single class.

Protective Provisions – The holders of convertible preferred stock have certain protective provisions. As long as one million shares of convertible preferred stock remain outstanding, the Company shall not, without the approval of the holders of more than 50% of the then-outstanding shares of convertible preferred stock, voting as a single class on an as-converted basis, (i) authorize or create any new class or series of equity security that is senior to or on parity with the convertible preferred stock, (ii) increase or decrease the authorized number of shares under the Company's equity incentive plans, (iii) consummate a liquidation, dissolution or winding up of the Company, or any deemed liquidation event, (iv) redeem, purchase or otherwise acquire shares of common stock, subject to certain exceptions, (v) change the authorized number of directors, (vi) pay or declare dividends, or (vii) alter or change the rights, preferences or privileges of the convertible preferred stock in a manner that adversely affects their rights, preferences or privileges. In addition, the holders of Series B convertible preferred stock have certain incremental protective provisions. As long as one million shares of Series B convertible preferred stock remain outstanding, the Company shall not, without the approval of the holders of at least 60% of the then-outstanding shares of Series B convertible preferred stock, voting as a single class on an as-converted basis, (i) increase or decrease the authorized number of Series B convertible preferred stock, or (ii) amend the Company's certificate of incorporation in a manner that adversely affects the rights, powers, preferences and other terms of the Series B convertible preferred stock, but does not so affect the Series A convertible preferred stock.

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Common Stock

Pursuant to the Second Amended and Restated Certificate of Incorporation filed on November 30, 2017, the Company is authorized to issue a total of 55,000,000 shares of common stock, of which 2,642,796 shares were issued and outstanding at December 31, 2017.

In May 2012, the Company issued 1,000,000 shares of its restricted common stock to founders in exchange for cash proceeds of $10,000. The founders' shares contain certain provisions that allow the Company to repurchase shares from the founders upon the occurrence of certain events including voluntary termination by the founder. The repurchase rights on the restricted common stock lapsed and fully expired in February 2016.

In April 2014, the Company issued to JHU 111,111 shares of common stock as consideration for intellectual property rights received by the Company under an exclusive license agreement with JHU executed in December 2013. The Company determined the fair value of the common stock was more readily determinable than the fair value of the services rendered. The fair value of the underlying common stock on the date of issuance was $0.31 per share, resulting in total stock compensation expense of $34,000 recognized immediately in accordance with the terms of the agreement, which provided that the shares were fully vested and nonforfeitable at the time of issuance.

Common shares reserved for future issuance upon the exercise, issuance or conversion of the respective equity instruments are as follows (in thousands):

	December 31,	
	2016	2017
Series A convertible preferred stock	26,111	26,083
Series B convertible preferred stock	—	12,632
Stock options issued and outstanding	3,403	6,105
Stock options available for future grant	26	2,932
Conversion of common stock warrants	60	60
Total	29,600	47,812

Common stockholders are entitled to dividends if and when declared by the Board of Directors subject to the prior rights of the preferred stockholders. As of December 31, 2017, no dividends on common stock had been declared by the Board of Directors.

9. Stock-Based Compensation

In December 2012, the Company adopted the 2012 Equity Incentive Plan (the "2012 Plan"), as amended and restated, under which it reserved 2,649,182 shares of common stock for the issuance of stock options, stock appreciation rights, restricted stock and restricted stock units to employees, directors and consultants. Stock options granted under the 2012 Plan generally vest over four years and expire no more than 10 years from the date of grant. Unless terminated sooner, the 2012 Plan will terminate automatically ten years from the later of the initial approval or subsequent approved amendment.

In August 2014, the Company amended the 2012 Plan to allow for the issuance of up to 3,429,478 shares of common stock. In January 2016, the Company amended the 2012 Plan to allow for the issuance of up to 4,245,259 shares of common stock. In April 2016, the Company amended the 2012

ALLAKOS INC.
Notes to Financial Statements

Plan to allow for the issuance of up to 4,323,859 shares of common stock. In August 2017, the Company amended the 2012 Plan to allow for the issuance of up to 8,068,807 shares of common stock. In November 2017, the Company amended the 2012 Plan twice, first to allow for the issuance of up to 8,468,807 shares of common stock, and a second time to allow for the issuance of up to 10,568,807 shares of common stock.

During the years ended December 31, 2016 and 2017, the Company only issued stock option awards under the 2012 Plan. As of December 31, 2016 and 2017, there were 26,135 and 2,932,173 shares of common stock available for future issuance under the 2012 plan, respectively.

Total stock-based compensation expense recognized, before taxes, during the years ended December 31, 2016 and 2017 is as follows (in thousands):

	Year Ended December 31,	
	2016	2017
Research and development	$108	$175
General and administrative	74	227
Total	$182	$402

No income tax benefits for stock-based compensation expense have been recognized for the years ended December 31, 2016 and 2017 as a result of the Company's full valuation allowance applied to net deferred tax assets and net operating loss carryforwards.

The following weighted-average assumptions were used to calculate the fair value of stock-based awards granted to employees and directors during the periods indicated:

	Year Ended December 31,	
	2016	2017
Risk-free interest rate	1.64%	1.83%
Expected volatility	73.22%	77.59%
Expected dividend yield	—	—
Expected term (in years)	6.02	6.08

ALLAKOS INC.
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Activity under the 2012 Plan is summarized as follows (in thousands, except per share data):

	Shares Available for Grant	Options Outstanding	Weighted-Average Exercise Price Per Share	Aggregate Intrinsic Value
Balance at December 31, 2015	1,735	1,664	$ 0.32	
Shares authorized	79	—		
Granted	(1,835)	1,835	$ 0.42	
Exercised	—	(49)	$ 0.40	
Forfeited	47	(47)	$ 0.37	
Balance at December 31, 2016	26	3,403	$ 0.37	$ 9,659
Shares authorized	6,245	—		
Granted	(3,817)	3,817	$ 0.63	
Exercised	—	(679)	$ 0.34	
Repurchased	42	—	$ 0.31	
Forfeited	436	(436)	$ 0.38	
Balance at December 31, 2017	2,932	6,105	$ 0.53	$ 16,331
Options exercisable		3,955	$ 0.49	$ 10,750
Options vested and expected to vest		6,092	$ 0.53	$ 16,308

The weighted-average fair value of options granted to employees and directors during the years ended December 31, 2016 and 2017 was $0.27 and $0.43 per share, respectively.

The aggregate fair value of stock options that vested during the years ended December 31, 2016 and 2017 was $0.2 million and $0.2 million, respectively.

The aggregate intrinsic value of stock options is calculated as the difference between the exercise price of the stock options and the fair value of the Company's common stock for those stock options that had exercise prices lower than the fair value of the Company's common stock. The aggregate intrinsic value of stock options exercised during the years ended December 31, 2016 and 2017 was $12,000 and $0.1 million, respectively.

The weighted-average remaining contractual life of options outstanding was 7.5 years and 8.7 years at December 31, 2016 and 2017, respectively. At December 31, 2017, the weighted-average remaining contractual life was 8.7 years for both exercisable options and vested and expected to vest options.

During the years ended December 31, 2016 and 2017, the Company did not grant any stock options with performance-based or market-based vesting conditions, nor did the Company grant any stock options to non-employees in exchange for services.

As of December 31, 2017, total unrecognized stock-based compensation expense relating to unvested stock options was $1.9 million. This amount is expected to be recognized over a weighted-average period of 3.0 years.

ALLAKOS INC.
Notes to Financial Statements

Restricted Common Stock

The 2012 Plan allows for the issuance of restricted common stock and early exercise of unvested stock options in exchange for restricted common stock. Unvested shares of restricted common stock are subject to repurchase by the Company at the original issuance price in the event of the employee's termination, either voluntarily or involuntarily. Consideration received for unvested stock-based awards is initially recorded as a liability and subsequently reclassified into stockholders' deficit as the related awards vest.

Since inception, the Company has issued a total of 384,580 shares of restricted common stock to employees associated with unvested stock-based awards. A summary of the restricted common stock activity during the year ended December 31, 2017 is as follows (in thousands, except per share data):

	Shares	Weighted-Average Grant Date Fair Value Per Share
Balance at December 31, 2016	256	$ 0.33
Vested	(84)	$ 0.34
Repurchased	(42)	$ 0.31
Balance at December 31, 2017	130	$ 0.34

The fair value of restricted common stock that vested during the years ended December 31, 2016 and 2017 was $36,000 and $28,000, respectively.

As of December 31, 2017, total liabilities related to unvested shares of restricted common stock was $44,000. This amount is expected to be recognized over a weighted-average period of 1.8 years.

10. Income Taxes

The Company's deferred income tax assets include operating losses and tax credit carryforwards, as well as certain temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Total deferred income tax assets, net of valuation allowance, at December 31, 2016 and 2017 were as follows (in thousands):

	December 31,	
	2016	2017
Deferred tax assets:		
Net operating loss carryforwards	$ 15,477	$ 15,769
Research and development credits	1,585	2,242
Accruals and reserves	299	50
Fixed and intangible assets	33	51
Total gross deferred tax assets	17,394	18,112
Less: Valuation allowance	(17,394)	(18,112)
Net deferred tax assets	$ —	$ —

Management has evaluated the positive and negative evidence surrounding the realizability of its deferred tax assets and has determined that it is more likely than not that the Company will not

recognize the benefits of its federal and state deferred tax assets, and as a result, a valuation allowance of $17.4 million and $18.1 million has been established at December 31, 2016 and 2017, respectively. The change in the valuation allowance was $7.2 million and $0.7 million for the years ended December 31, 2016 and 2017, respectively. The Company has incurred net operating losses ("NOL") since inception. At December 31, 2017, the Company had federal and state NOL carryforwards of $61.8 million and $38.7 million, respectively, which expire beginning in 2032. As of December 31, 2017, the Company had federal and state research and development tax credit carryforwards of $1.9 million and $1.9 million, respectively, which expire beginning in 2033. The Company does not have any NOL carryforwards associated with deductible stock option exercises at December 31, 2016 or 2017.

The Internal Revenue Code of 1986, as amended (the "Code"), provides for a limitation of the annual use of net operating losses and other tax attributes (such as research and development tax credit carryforwards) following certain ownership changes defined by the Code that could limit the Company's ability to utilize these carryforwards in the future. At this time, the Company has not completed a study to assess whether an ownership change under Section 382 of the Code has occurred, or whether there have been multiple ownership changes since the Company's formation. The Company may have experienced ownership changes, as defined by the Code, as a result of past financing transactions and may not be able to take full advantage of these carryforwards for federal or state income tax purposes.

The effective tax rate for the years ended December 31, 2016 and 2017 is different from the federal statutory rate primarily due to the valuation allowance against deferred tax assets as a result of insufficient income. The Company's effective tax rate differs from the federal statutory tax rate as follows:

	Year Ended December 31,	
	2016	2017
Federal statutory tax rate	34.0%	34.0%
Change in deferred tax asset valuation allowance	(42.3)%	(3.0)%
State taxes, net of federal benefit	7.3%	1.6%
Research and development tax credits	1.3%	0.4%
Remeasurement of deferreds	—	(31.2)%
Beneficial conversion feature	—	1.2%
Other	(0.3)%	(1.8)%
Effective tax rate	—	1.2%

Uncertain Tax Positions

The Company accounts for its uncertain tax positions in accordance with FASB ASC Topic No. 740-10, *Accounting for Uncertainty in Income Taxes* ("ASC 740-10"). Per ASC 740-10, the Company determines its uncertain tax positions based on a determination of whether and how much of a tax benefit taken by the Company in its tax filings is more likely than not to be sustained upon examination by the relevant income tax authorities.

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A reconciliation of the beginning and ending amount of unrecognized benefits is as follows (in thousands):

	Year Ended December 31,	
	2016	2017
Balance at the beginning of the year	$ 490	$ 758
Increase related to current year tax positions	270	359
Increase related to prior year tax positions	(2)	32
Balance at the end of the year	$ 758	$ 1,149

If recognized, gross unrecognized tax benefits would not have an impact on the Company's effective tax rate due to the Company's full valuation allowance position. While it is often difficult to predict the final outcome of any particular uncertain tax position, the Company does not believe that the amount of gross unrecognized tax benefits will change significantly in the next twelve months.

It is the Company's policy to include penalties and interest expense related to income taxes as a component of the income tax provision as necessary. Management determined that no accrual for interest and penalties was required at December 31, 2016 or 2017. Since the Company is in a loss carryforward position, it is generally subject to examination by the U.S. federal, state and local income tax authorities for all tax years in which a loss carryforward is available.

Benefit from Income Taxes Related to Intra-Period Tax Allocations

The beneficial conversion feature associated with the Company's issuance of convertible promissory notes to related parties resulted in a temporary difference between the carrying amount and tax basis of the debt instruments. Upon issuance, the Company recognized the temporary difference as a deferred tax liability of $1.0 million with an offsetting adjustment to additional paid in capital. Recognition of the deferred tax liability resulted in a reduction to the Company's net deferred tax assets. Accordingly, the Company reduced its existing valuation allowance by $1.0 million and recognized a corresponding income tax benefit of $1.0 million in accordance with ASC 740-10. During the year ended December 31, 2017, the deferred tax liability was reduced in relation to the amortization of the beneficial conversion feature. Upon extinguishment of the notes in November 2017, the Company wrote down the remaining $0.7 million of deferred tax liability resulting in a net benefit from income taxes of $0.3 million for the year ended December 31, 2017.

Recent Changes to U.S. Tax Law

In December 2017, the 2017 Tax Cuts and Jobs Act (the "2017 Tax Act") was enacted and includes a broad range of provisions, many of which differ significantly from those contained in previous U.S. tax law. The Company accounts for changes in tax law in accordance with ASC 740 which requires companies to recognize the effect of such changes in the period of enactment. However, the SEC staff issued Staff Accounting Bulletin 118 which will allow companies to record provisional amounts during a measurement period that is similar to the measurement period used when accounting for business combinations. Accordingly, the Company adjusted its deferred taxes and related valuation allowances on a provisional basis to reflect the reduction in U.S. federal corporate tax rate from 35% to 21%, based on current understanding of the new law. The Company will continue to assess the impact of the recently enacted tax law (including any future guidance from federal and state tax authorities as well as any future guidance for the associated income tax accounting) on the financial statements over the next 12 months.

ALLAKOS INC.
Notes to Financial Statements

11. Defined Contribution Plan

In July 2013, the Company established a Savings Incentive Match Plan (the “SIMPLE IRA”) for its employees, allowing for both employee and employer contributions for those employees who meet defined minimum age and service requirements. The SIMPLE IRA allows participants to defer a portion of their annual compensation on a pretax basis. During the years ended December 31, 2016 and 2017, the Company made contributions to the Plan of $59,000 and $0.1 million, respectively.

12. Related Party Transactions

In September 2014, as part of the Second Closings of its Series A convertible preferred stock (See Note 8), the Company received a $50,000 fully recourse promissory note from an employee as partial consideration for the purchase of Series A convertible preferred stock. The loan accrues interest at 2.97% per annum and is scheduled to mature on September 19, 2024. As of December 31, 2017, the carrying value of the related party promissory note was $55,000 including accrued interest. The principal portion of the related party promissory note is recorded in temporary equity on the balance sheet as a reduction to Series A convertible preferred stock. Interest accrued on the loan is recorded as a receivable within prepaid and other current assets on the balance sheet. For the years ended December 31, 2016 and 2017, the Company recognized interest income of $2,000 and $2,000, respectively. Interest income related to the promissory note is included as a component of interest expense, net within the Company’s accompanying statements of operations and comprehensive loss.

13. Subsequent Events

In January 2018, the Company entered into a lease for 25,136 rentable square feet of office and laboratory space in Redwood City, California, with a lease term commencing on the later of the substantial completion and delivery of the premises and February 1, 2018. The base term of the lease is 10.75 years with an option to extend an additional term of 5 years. The lease agreement requires the Company to pay a security deposit of $0.8 million, which will be recorded in restricted cash on the Company’s balance sheet. The lease has a total commitment of $14.0 million over the base term.

Management has reviewed and evaluated material subsequent events from the balance sheet date of December 31, 2017, through the date of the independent registered public accounting firm’s report. No subsequent events have been identified for disclosure, other than those matters noted above.

Shares

COMMON STOCK

Goldman Sachs & Co. LLC **Jefferies**

PART II

INFORMATION NOT REQUIRED IN THE PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution

The following table sets forth the expenses to be incurred in connection with the offering described in this Registration Statement, other than underwriting discounts and commissions, all of which will be paid by us. All amounts are estimates except the Securities and Exchange Commission's registration fee, the Financial Industry Regulatory Authority, Inc.'s filing fee and the exchange listing fee.

	Amount to be Paid
SEC Registration Fee	$ *
FINRA filing fee	*
Exchange listing fee	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent and registrar fees	*
Miscellaneous expenses	*
Total	$ *

* To be provided by amendment.

Item 14. Indemnification of Directors and Officers

Section 145 of the Delaware General Corporation Law empowers a corporation to indemnify its directors and officers and to purchase insurance with respect to liability arising out of their capacity or status as directors and officers, provided that the person acted in good faith and in a manner the person reasonably believed to be in our best interests, and, with respect to any criminal action, had no reasonable cause to believe the person's actions were unlawful. The Delaware General Corporation Law further provides that the indemnification permitted thereunder shall not be deemed exclusive of any other rights to which the directors and officers may be entitled under the corporation's bylaws, any agreement, a vote of stockholders or otherwise. The certificate of incorporation of the registrant to be in effect upon the completion of this offering provides for the indemnification of the registrant's directors and officers to the fullest extent permitted under the Delaware General Corporation Law. In addition, the bylaws of the registrant to be in effect upon the completion of this offering require the registrant to fully indemnify any person who 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 such person is or was a director or officer of the registrant, or is or was a director or officer of the registrant serving at the registrant's request as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorney's fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, to the fullest extent permitted by applicable 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 duty as a director, except (1) for any breach of the director's duty of loyalty to the corporation or its stockholders, (2) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (3) for

payments of unlawful dividends or unlawful stock repurchases or redemptions or (4) for any transaction from which the director derived an improper personal benefit. The registrant's certificate of incorporation to be in effect upon the completion of this offering provides that the registrant's directors shall not be personally liable to it or its stockholders for monetary damages for breach of fiduciary duty as a director and that if the Delaware General Corporation Law is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of the registrant's directors shall be eliminated or limited to the fullest extent permitted by the Delaware General Corporation Law, as so amended.

Section 174 of the Delaware General Corporation Law provides, among other things, that a director who willfully or negligently approves of an unlawful payment of dividends or an unlawful stock purchase or redemption may be held liable for such actions. A director who was either absent when the unlawful actions were approved, or dissented at the time, may avoid liability by causing his or her dissent to such actions to be entered in the books containing minutes of the meetings of the board of directors at the time such action occurred or immediately after such absent director receives notice of the unlawful acts.

As permitted by the Delaware General Corporation Law, the registrant intends to enter into separate indemnification agreements with each of the registrant's directors and certain of the registrant's officers which would require the registrant, among other things, to indemnify them against certain liabilities which may arise by reason of their status as directors, officers or certain other employees.

The registrant expects to obtain and maintain insurance policies under which its directors and officers are insured, within the limits and subject to the limitations of those policies, against certain expenses in connection with the defense of, and certain liabilities which might be imposed as a result of, actions, suits or proceedings to which they are parties by reason of being or having been directors or officers. The coverage provided by these policies may apply whether or not the registrant would have the power to indemnify such person against such liability under the provisions of the Delaware General Corporation Law.

These indemnification provisions and the indemnification agreements intended to be entered into between the registrant and the registrant's officers and directors may be sufficiently broad to permit indemnification of the registrant's officers and directors for liabilities (including reimbursement of expenses incurred) arising under the Securities Act of 1933, as amended.

The underwriting agreement between the registrant and the underwriters to be filed as Exhibit 1.1 to this registration statement provides for the indemnification by the underwriters of the registrant's directors and officers and certain controlling persons against specified liabilities, including liabilities under the Securities Act with respect to information provided by the underwriters specifically for inclusion in the registration statement.

Item 15. Recent Sales of Unregistered Securities

The following list sets forth information regarding all unregistered securities sold by us since January 1, 2015. No underwriters were involved in the sales and the certificates representing the securities sold and issued contain legends restricting transfer of the securities without registration under the Securities Act or an applicable exemption from registration.

(a) In March 2015, we issued 1,638,637 shares of our Series A convertible preferred stock at $1.80 per share, for aggregate proceeds of $2.9 million, to a total of 9 accredited investors.

(b) In January 2016, we issued 10,555,556 shares of our Series A convertible preferred stock at $1.80 per share, for aggregate proceeds of $19.0 million, to a total of 10 accredited investors.

(c) In June 2016, we issued to one accredited investor a warrant to purchase an aggregate of 29,761 shares of our common stock for an exercise price of $0.42 per share, for an aggregate exercise price of approximately $12,000. In December 2016, the number of shares exercisable under the warrant was increased to 59,522 shares due to the occurrence of an event that triggered such increase under the terms of the warrant. The additional 29,761 shares of our common stock that became exercisable under the warrant in December 2016 have an exercise price of $0.55 per share, for an aggregate exercise price of approximately $16,000.

(d) In August 2017, we issued unsecured convertible promissory notes in the aggregate principal amount of $7.5 million to a total of 17 accredited investors. These notes converted into 963,863 shares of our Series B convertible preferred stock in November 2017 upon the closing of our Series B financing.

(e) In November 2017, we issued 12,631,506 shares of our Series B convertible preferred stock at $7.9279 per share, for aggregate proceeds of $100.1 million, including shares issued upon the conversion of the principal amount and accrued interest of outstanding notes, to a total of 40 accredited investors.

(f) From January 2015 through March 2018, we granted stock options to purchase an aggregate of 8,202,615 shares of common stock to certain employees, directors and consultants under our 2012 Plan at exercise prices per share ranging from $0.34 to $3.21, for an aggregate exercise price of approximately $8.8 million.

(g) From January 2015 through March 2018, we issued and sold to our employees an aggregate of 1,474,020 shares of common stock upon the exercise of options under our 2012 Plan at exercise prices per share ranging from $0.29 to $0.42, for an aggregate exercise price of approximately $0.5 million.

The offers, sales and issuances of the securities described in Items 15(a) through 15(e) were exempt from registration under the Securities Act under Section 4(a)(2) of the Securities Act or Regulation D promulgated thereunder as transactions by an issuer not involving a public offering. The recipients of securities in each of these transactions acquired the securities for investment only and not with a view to or for sale in connection with any distribution thereof and appropriate legends were affixed to the securities issued in these transactions. Each of the recipients of securities in these transactions was an accredited person and had adequate access, through employment, business or other relationships, to information about the registrant.

The offers, sales and issuances of the securities described in Items 15(f) and 15(g) were exempt from registration under the Securities Act under either (1) Rule 701 in that the transactions were under compensatory benefit plans and contracts relating to compensation as provided under Rule 701 or (2) Section 4(a)(2) of the Securities Act as transactions by an issuer not involving any public offering. The recipients of such securities were the registrant’s employees, consultants or directors and received the securities under the registrant’s 2012 Plan. The recipients of securities in each of these transactions represented their intention to acquire the securities for investment only and not with view to or for sale in connection with any distribution thereof and appropriate legends were affixed to the securities issued in these transactions.

Item 16. Exhibit and Financial Statement Schedules

(a) Exhibits.

We have filed the exhibits listed on the accompanying Exhibit Index of this Registration Statement.

(b) Financial Statement Schedules.

Schedules have been omitted because the information required to be set forth therein is not applicable or is shown in the financial statements or notes thereto.

Item 17. Undertakings

The undersigned registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreements, 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 Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities 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 Securities Act and will be governed by the final adjudication of such issue.

The undersigned 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 of 1933 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.

EXHIBIT INDEX

Exhibit Number	Description
1.1*	Form of Underwriting Agreement, including Form of Lock-up Agreement.
3.1	Amended and Restated Certificate of Incorporation of the Registrant, as currently in effect.
3.2*	Form of Amended and Restated Certificate of Incorporation of the Registrant, to be in effect upon the completion of this offering.
3.3	Amended and Restated Bylaws of the Registrant, as currently in effect.
3.4*	Form of Amended and Restated Bylaws of the Registrant, to be in effect upon the completion of this offering.
4.1	Amended and Restated Investors' Rights Agreement among the Registrant and certain of its stockholders, dated November 30, 2017.
4.2*	Specimen common stock certificate of the Registrant.
5.1*	Opinion of Wilson Sonsini Goodrich & Rosati, Professional Corporation.
10.1+*	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers.
10.2+	2012 Equity Incentive Plan, as amended, and forms of agreement thereunder.
10.3+*	2018 Equity Incentive Plan and forms of agreements thereunder, to be in effect upon the completion of this offering.
10.4+*	Offer Letter between the Registrant and Robert Alexander, Ph.D.
10.5+*	Offer Letter between the Registrant and Adam Tomasi, Ph.D.
10.6+*	Offer Letter between the Registrant and Henrik Rasmussen, M.D., Ph.D.
10.7+*	Offer Letter between the Registrant and Christopher Bebbington, D.Phil.
10.8	Lease Agreement between the Registrant and ARE-San Francisco No. 29, LLC, dated May 1, 2013, as amended.
10.9*	Lease Agreement between the Registrant and Westport Office Park, LLC, dated January 4, 2018.
10.10*#	Non-exclusive License Agreement between the Registrant, BioWa, Inc. and Lonza Sales AG, dated October 31, 2013.
10.11*#	Amended and Restated License Agreement between the Registrant and the Johns Hopkins University, dated September 30, 2016.
23.1*	Consent of Independent Registered Public Accounting Firm.
23.2*	Consent of Wilson Sonsini Goodrich & Rosati, Professional Corporation (included in Exhibit 5.1).
24.1	Power of Attorney (see page II-6 to this Form S-1).

* To be filed by amendment.
\+ Indicated management contract or compensatory plan.
\# Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment and this exhibit has been filed separately with the SEC.

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 City of San Carlos, State of California, on , 2018.

ALLAKOS INC.

By: _____
Robert Alexander, Ph.D.
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Robert Alexander, Ph.D. and Adam Tomasi, Ph.D. as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and substitution, for him or her and in his or her name, place and stead, in any and all capacities (including his capacity as a director and/or officer of Allakos Inc.) to sign any or all amendments (including post-effective amendments) to this registration statement and any and all additional registration statements pursuant to Rule 462(b) of the Securities Act of 1933, as amended, and to file the same, with all exhibits thereto, and all other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, 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 they, he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agents or any of them, or their, his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
Robert Alexander, Ph.D.	President, Chief Executive Officer and Director *(Principal Executive Officer)*	, 2018
Adam Tomasi, Ph.D.	Chief Operating Officer, Chief Financial Officer and Secretary *(Principal Financial and Accounting Officer)*	, 2018
Daniel Janney	Chair of the Board	, 2018
Steve James	Director	, 2018
John McKearn, Ph.D.	Director	, 2018
Paul Walker	Director	, 2018

Exhibit 3.1

SECOND AMENDED AND RESTATED

CERTIFICATE OF INCORPORATION OF

ALLAKOS INC.

Allakos Inc., a corporation organized and existing under the laws of the State of Delaware (the "**Corporation**"), certifies that:

1. The name of the Corporation is Allakos Inc. The Corporation's original Certificate of Incorporation was filed with the Secretary of State of the State of Delaware (the "**SOS**") on March 9, 2012 (the "**Original Certificate**"). The Original Certificate was amended and restated in its entirety pursuant to the Amended and Restated Certificate of Incorporation filed with the SOS on December 6, 2012 (the "**Restated Certificate**"). The Restated Certificate was amended three times pursuant to Certificates of Amendment of the Amended and Restated Certificate filed with the SOS on August 14, 2014, March 12, 2015, and August 7, 2017.

2. This Second Amended and Restated Certificate of Incorporation was duly adopted in accordance with Sections 242 and 245 of the General Corporation Law of the State of Delaware, and has been duly approved by the written consent of the stockholders of the Corporation in accordance with Section 228 of the General Corporation Law of the State of Delaware.

3. The text of the Restated Certificate, as amended to date, is hereby amended and restated to read as set forth in Exhibit A attached hereto.

IN WITNESS WHEREOF, Allakos Inc. has caused this Second Amended and Restated Certificate of Incorporation to be signed by Robert Alexander, a duly authorized officer of the Corporation, on November 30, 2017.

/s/ Robert Alexander

Robert Alexander, Chief Executive Officer

EXHIBIT A

ARTICLE I

The name of the Corporation is Allakos Inc.

ARTICLE II

The purpose of this Corporation is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law of Delaware.

ARTICLE III

The address of the Corporation's registered office in the State of Delaware is Corporation Trust Center, 1209 Orange Street, Wilmington, New Castle County, DE 19801. The name of the registered agent at such address is The Corporation Trust Company.

ARTICLE IV

The total number of shares of stock that the Corporation shall have authority to issue is 93,714,587, consisting of 55,000,000 shares of Common Stock, $0.001 par value per share (the "**Common Stock**"), and 38,714,587 shares of Preferred Stock, $0.001 par value per share. The first series of Preferred Stock shall be designated "**Series A Preferred Stock**" and shall consist of 26,083,081 shares. The second series of Preferred Stock shall be designated "**Series B Preferred Stock**" and shall consist of 12,631,506 shares.

ARTICLE V

The terms and provisions of the Common Stock and Preferred Stock are as follows:

1. **Definitions**. For purposes of this ARTICLE V, the following definitions shall apply:

(a) "**Conversion Price**" means $1.80 per share for the Series A Preferred Stock and $7.9279 per share for the Series B Preferred Stock (subject in each case to adjustment from time to time for Recapitalizations and as otherwise set forth elsewhere herein).

(b) "**Convertible Securities**" means any evidences of indebtedness, shares or other securities convertible into or exchangeable for Common Stock.

(c) "**Corporation**" means Allakos Inc.

(d) "**Distribution**" means the transfer of cash or other property without consideration whether by way of dividend or otherwise, other than dividends on Common Stock payable in Common Stock, or the purchase or redemption of shares of the Corporation by the Corporation for cash or property other than: (i) repurchases of Common Stock issued to or held by employees, officers, Directors or consultants of the Corporation or its subsidiaries upon termination of their employment or services pursuant to agreements the form of which has been approved by the Required Director Approval (as defined in Section 4(d) of this ARTICLE V) providing for the right of said repurchase, (ii) repurchases of

Common Stock issued to or held by employees, officers, Directors or consultants of the Corporation or its subsidiaries pursuant to rights of first refusal contained in the Corporation's Bylaws or agreements the form of which has been approved by the Required Director Approval (as defined below) providing for such right, and (iii) repurchase of capital stock of the Corporation approved by the Required Director Approval (as defined below) in connection with the settlement of disputes with any stockholder.

(e) "**Dividend Rate**" means an annual rate of 8% of the Original Issue Price per share for the applicable series of Preferred Stock.

(f) "**Liquidation Preference**" means $1.80 per share for the Series A Preferred Stock and $7.9279 per share for the Series B Preferred Stock (subject in each case to adjustment from time to time for Recapitalizations and as otherwise set forth elsewhere herein).

(g) "**Options**" means rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

(h) "**Original Issue Price**" means $1.80 per share for the Series A Preferred Stock and $7.9279 per share for the Series B Preferred Stock (subject in each case to adjustment from time to time for Recapitalizations and as otherwise set forth elsewhere herein).

(i) "**Preferred Stock**" means the Series A Preferred Stock and the Series B Preferred Stock.

(j) "**Recapitalization**" means any stock dividend, stock split, combination of shares, reorganization, recapitalization, reclassification or other similar event.

2. **Dividends**.

(a) ***Preferred Stock***. In any calendar year, the holders of outstanding shares of Preferred Stock shall be entitled to receive dividends, when, as and if declared by the Corporation's Board of Directors (the "**Board of Directors**"), out of any assets at the time legally available therefor, at the applicable Dividend Rate payable in preference and priority to any declaration or payment of any Distribution on the Common Stock of the Corporation in such calendar year. No Distributions shall be made with respect to the Common Stock or any series of Preferred Stock unless dividends on all series of Preferred Stock have been declared in accordance with the preferences stated herein and all declared dividends on the Preferred Stock have been paid or set aside for payment to the Preferred Stock holders. The right to receive dividends on shares of Preferred Stock shall not be cumulative, and no right to dividends shall accrue to holders of Preferred Stock by reason of the fact that dividends on said shares are not declared or paid.

(b) ***Additional Dividends***. After the payment or setting aside for payment of the dividends described in Section 2(a) hereof, any additional dividends (other than dividends on Common Stock payable solely in Common Stock) set aside or paid in any fiscal year shall be set aside or paid among the holders of the Preferred Stock and Common Stock then outstanding in proportion to the greatest whole number of shares of Common Stock which would be held by each such holder if all shares of Preferred Stock were converted at the applicable, then-effective Conversion Rate (as defined in Section 4(a) hereof).

(c) ***Non-Cash Distributions***. Whenever a Distribution provided for in this Section 2 shall be payable in property other than cash, the value of such Distribution shall be deemed to be the fair market value of such property as determined in good faith by the Board of Directors.

(d) ***Consent to Certain Distributions***. To the extent the Corporation may be subject to Section 500 of the California Corporations Code or any successor provision, such section or any successor provision shall not apply to the Corporation's repurchase of shares of Common Stock issued to or held by employees, officers, Directors, consultants or other service providers (i) pursuant to agreements providing for such repurchase at the original purchase price, (ii) at a purchase price not exceeding the fair market value of such Common Stock, (iii) in connection with the exercise of a contractual right of first refusal entitling the Corporation to purchase the shares upon the terms offered by a third party, or (iv) pursuant to any agreement or arrangement between the Corporation and any employee, officer, Director, consultant or other service provider which is approved by the holders of at least a majority of the Preferred Stock then outstanding, voting together as a single class and on an as-converted to Common Stock basis. Any such repurchases of shares of Common Stock may be made by the Corporation without regard to the "preferential dividends arrears amount" or any "preferential rights amount," as such terms are defined in Section 500 of the California Corporations Code.

(e) ***Waiver of Dividends***. Any dividend preference of any Preferred Stock may be waived, in whole or in part, by the consent or vote of the holders of the majority of the outstanding shares of the Preferred Stock (voting as a single class on an as-converted to Common Stock basis).

3. **Liquidation Rights**.

(a) ***Preferred Liquidation Preference***.

(i) In the event of any Liquidation Event (as defined below), either voluntary or involuntary, the holders of the Series B Preferred Stock shall be entitled to receive, prior and in preference to any Distribution of any of the assets of the Corporation to the holders of the Series A Preferred Stock or Common Stock by reason of their ownership of such stock, an amount per share for each share of Series B Preferred Stock held by them equal to the sum of (i) the Liquidation Preference specified for such share of Series B Preferred Stock and (ii) all declared but unpaid dividends (if any) on such share of Series B Preferred Stock, or such lesser amount as may be approved by the holders of at least sixty percent (60%) of the outstanding shares of Series B Preferred Stock (the "**Series B Liquidation Preference**"). If upon a Liquidation Event, the assets of the Corporation legally available for distribution to the holders of the Series B Preferred Stock are insufficient to permit the payment to such holders of the full amounts specified in this Section 3(a)(i)then the entire assets of the Corporation legally available for distribution shall be distributed with equal priority and *pro rata* among the holders of the Series B Preferred Stock in proportion to the full amounts they would otherwise be entitled to receive pursuant to this Section 3(a)(i).

(ii) In the event of any Liquidation Event, either voluntary or involuntary, after the payment of the full Series B Liquidation Preference pursuant to Section 3(a)(i) above, the holders of the Series A Preferred Stock shall be entitled to receive, prior and in preference to any Distribution of any of the assets of the Corporation to the holders of the Common Stock by reason of their ownership of such stock, an amount per share for each share of Series A Preferred Stock held by them equal to the sum of (i) the Liquidation Preference specified for such share of Series A Preferred Stock and (ii) all declared but unpaid dividends (if any) on such share of Series A Preferred Stock, or such lesser

amount as may be approved by the holders of the majority of the outstanding shares of Series A Preferred Stock (the "**Series A Liquidation Preference**"). If, upon a Liquidation Event, after the payment of the full Series B Liquidation Preference pursuant to Section 3(a)(i) above, the assets of the Corporation legally available for distribution to the holders of the Series A Preferred Stock are insufficient to permit the payment to such holders of the full amounts specified in this Section 3(a)(ii) then the entire assets of the Corporation legally available for distribution shall be distributed with equal priority and *pro rata* among the holders of the Series A Preferred Stock in proportion to the full amounts they would otherwise be entitled to receive pursuant to this Section 3(a)(ii).

(b) ***Remaining Assets***. After the payment or setting aside for payment to the holders of Preferred Stock of the full Series B Liquidation Preference and full Series A Liquidation Preference specified in Sections 3(a)(i) and 3(a)(ii) hereof, respectively, the remaining assets of the Corporation legally available for distribution shall be distributed among the holders of the Common Stock, pro rata in proportion to the number of shares of Common Stock deemed held by them.

(c) ***Shares not Treated as Both Preferred Stock and Common Stock in any Distribution***. Shares of Preferred Stock shall not be entitled to be converted into shares of Common Stock in order to participate in any Distribution, or series of Distributions, as shares of Common Stock, without first foregoing participation in the Distribution, or series of Distributions, as shares of Preferred Stock.

(d) ***Liquidation Event***. For purposes of this Section 3, a Liquidation Event shall be deemed to be occasioned by, or to include, (i) the acquisition of the Corporation by another entity by means of any transaction or series of related transactions to which the Corporation is party (including, without limitation, any stock acquisition, reorganization, merger or consolidation but excluding any sale of stock for capital raising purposes or a merger effected exclusively to change the domicile of the Corporation) other than a transaction or series of related transactions in which the holders of the voting securities of the Corporation outstanding immediately prior to such transaction or series of related transactions retain, immediately after such transaction or series of related transactions, as a result of shares in the Corporation held by such holders prior to such transaction or series or related transactions, at least a majority of the total voting power represented by the outstanding voting securities of the Corporation or such other surviving or resulting entity (or if the Corporation or such other surviving or resulting entity is a wholly-owned subsidiary immediately following such acquisition, its parent); (ii) a sale, lease, exclusive license or other disposition of all or substantially all of the assets of the Corporation and its subsidiaries taken as a whole by means of any transaction or series of related transactions, except where such sale, lease, exclusive license or other disposition is to a wholly-owned subsidiary of the Corporation; or (iii) any liquidation, dissolution or winding up of the Corporation, whether voluntary or involuntary (collectively, a "**Liquidation Event**"). The treatment of any transaction or series of related transactions as a Liquidation Event may be waived by the consent or vote of (i) the holders of at least a majority of the outstanding Preferred Stock (voting as a single class and on an as-converted to Common Stock basis) and (ii) the holders of at least 60% of the outstanding Series B Preferred Stock (voting as a single class and on an as-converted to Common Stock basis).

(e) ***Valuation of Non-Cash Consideration***. If any assets of the Corporation distributed to stockholders in connection with any Liquidation Event are other than cash, then the value of such assets shall be their fair market value as determined in good faith by the Board of Directors with the Required Director Approval (as defined in Section 4(d) hereof), *except that* any publicly-traded securities to be distributed to stockholders in a Liquidation Event shall be valued as follows:

(i) if the securities are then traded on a national securities exchange, then the value of the securities shall be deemed to be the average of the closing prices of the securities on such exchange over the ten (10) trading day period ending five (5) trading days prior to the Distribution;

(ii) if the securities are actively traded over-the-counter, then the value of the securities shall be deemed to be the average of the closing bid prices of the securities over the ten (10) trading day period ending five (5) trading days prior to the Distribution.

In the event of a merger or other acquisition of the Corporation by another entity, the Distribution date shall be deemed to be the date such transaction closes.

For the purposes of this Section 3(e) "**trading day**" means any day which the exchange or system on which the securities to be distributed are traded is open and "**closing prices**" or "**closing bid prices**" shall be deemed to be: (A) for securities traded primarily on the New York Stock Exchange, the American Stock Exchange or a Nasdaq market, the last reported trade price or sale price, as the case may be, at 4:00 p.m., New York time, on that day and (B) for securities listed or traded on other exchanges, markets and systems, the market price as of the end of the regular hours trading period that is generally accepted as such for such exchange, market or system. If, after the date hereof, the benchmark times generally accepted in the securities industry for determining the market price of a stock as of a given trading day shall change from those set forth above, the fair market value shall be determined as of such other generally accepted benchmark times.

(f) ***Notional Conversion***. Notwithstanding the above, for purposes of determining the amount each holder of shares of Preferred Stock is entitled to receive with respect to a Liquidation Event, each such holder of shares of Preferred Stock shall be deemed to have converted (regardless of whether such holder actually converted) such holder's shares of Preferred Stock into shares of Common Stock immediately prior to the Liquidation Event if, as a result of an actual conversion, such holder would receive, in the aggregate, an amount greater than the amount that would be distributed to such holder if such holder did not convert such shares of Preferred Stock into shares of Common Stock. If any such holder shall be deemed to have converted shares of Preferred Stock into Common Stock pursuant to this Section, then such holder shall not be entitled to receive any distribution that would otherwise be made to holders of Preferred Stock that have not converted (or have not been deemed to have converted) into shares of Common Stock.

(g) ***Option to Purchase***. In the event (x) the Corporation enters into an agreement whereby (A) the Corporation grants any corporation or other entity or person (a "**Prospective Acquiror**") an option or other right to consummate a Liquidation Event with respect to the Corporation, or (B) the Corporation enters into any agreement whereby the Corporation has the option or other right to require a Prospective Acquiror to consummate a Liquidation Event with respect to the Corporation, and (y) the Board of Directors determines to distribute to the Corporation's stockholders any initial consideration paid by the Prospective Acquiror to the Corporation with respect to such option or right (the "**Upfront Stockholder Consideration**"), any Upfront Stockholder Consideration shall be distributed as proceeds from a Liquidation Event in accordance with Section 3(a) through (f) hereof and not as a dividend under Section 2 hereof.

(h) ***Escrows and Contingent Payments***. In the event of a Liquidation Event pursuant to Section 3(d)(i) hereof, 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 contingencies, the purchase agreement shall provide that (a) the portion of such consideration that is not placed in escrow and not subject to any contingencies (the "**Initial Consideration**") shall be allocated among the holders of capital stock of the Corporation in accordance with Section 3(a) through (f) hereof as if the Initial Consideration were the only consideration payable in connection with such Liquidation Event and (b) any additional consideration which becomes payable to the stockholders of the Corporation upon release from escrow or satisfaction of contingencies shall be allocated among the holders of capital stock of the Corporation in accordance with Sections 3(a) through (f) hereof after taking into account the previous payment of the Initial Consideration as part of the same transaction.

4. **Conversion**. The holders of the Preferred Stock shall have conversion rights as follows:

(a) ***Right to Convert***. Each share of Preferred Stock shall be convertible, at the option of the holder thereof, at any time into that number of fully-paid, nonassessable shares of Common Stock determined by dividing the applicable Original Issue Price by the Conversion Price for such series of Preferred Stock (the ratio of the number of shares of Common Stock into which each share of Preferred Stock may be converted is hereinafter referred to as the "**Conversion Rate**".) Upon any decrease or increase in the Conversion Price, as described in this Section 4, the Conversion Rate shall be appropriately increased or decreased.

(b) ***Automatic Conversion***. Each share of Preferred Stock shall automatically be converted into fully-paid, non-assessable shares of Common Stock at the then-effective Conversion Rate for such share (A) immediately prior to the closing of a firm commitment underwritten initial public offering pursuant to an effective registration statement filed under the Securities Act of 1933, as amended (the "**Securities Act**"), covering the offer and sale of the Corporation's Common Stock, *provided* that the offering price per share is not less than $7.9279 (as adjusted for Recapitalizations) and the aggregate gross proceeds to the Corporation in excess of $50,000,000 (before deduction of underwriter commissions and discounts) (a "**Qualified IPO**"), or (B) upon the receipt by the Corporation of a written request for such conversion from the holders of at least a majority of the Preferred Stock then outstanding (voting as a single class and on an as-converted to Common Stock basis), or, if later, the effective date for conversion specified *in* such requests. Each of the events referred to in Sections 4(b)(A) and (B) hereof are referred to herein as an "**Automatic Conversion Event**".

(c) ***Mechanics of Conversion***. No fractional shares of Common Stock shall be issued upon conversion of Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the then fair market value of a share of Common Stock as determined by the Board of Directors. For such purpose, all shares of Preferred Stock held by each holder shall be aggregated, and any resulting fractional share of Common Stock shall be paid in cash. Before any holder of Preferred Stock shall be entitled to convert the same into full shares of Common Stock, and to receive certificates therefor, such holder shall either (A) surrender the certificate or certificates therefor, duly endorsed, at the office of the Corporation or of any transfer agent for the Preferred Stock or (B) notify the Corporation or its transfer agent that such certificates have been lost, stolen or destroyed and execute an agreement satisfactory to the Corporation to indemnify the Corporation from any loss incurred by it in connection with such certificates, and shall give written notice to the Corporation at such office that the holder elects to convert the same; *provided*, *however*, that on the date of an Automatic Conversion Event, the outstanding shares of Preferred Stock shall be converted automatically into Common Stock without any further action by the holders of such shares and whether or not the certificates representing such shares are surrendered to the Corporation or its transfer agent; *provided further*, however, that the Corporation shall not be obligated to issue

certificates evidencing the shares of Common Stock issuable upon such Automatic Conversion Event unless either the certificates evidencing such shares of Preferred Stock are delivered to the Corporation or its transfer agent as provided above, or the holder notifies the Corporation or its transfer agent that such certificates have been lost, stolen or destroyed and executes an agreement satisfactory to the Corporation to indemnify the Corporation from any loss incurred by it in connection with such certificates. On the date of the occurrence of an Automatic Conversion Event, each holder of record of shares of Preferred Stock shall be deemed to be the holder of record of the Common Stock issuable upon such conversion, notwithstanding that the certificates representing such shares of Preferred Stock shall not have been surrendered at the office of the Corporation, that notice from the Corporation shall not have been received by any holder of record of shares of Preferred Stock or that the certificates evidencing such shares of Common Stock shall not then be actually delivered to such holder.

The Corporation shall, as soon as practicable after such delivery, or after such agreement and indemnification, issue and deliver at such office to such holder of Preferred Stock a certificate or certificates for the number of shares of Common Stock to which the holder shall be entitled as aforesaid and a check payable to the holder in the amount of any cash amounts payable as the result of a conversion into fractional shares of Common Stock plus any declared and unpaid dividends on the converted Preferred Stock. 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 such conversion shall be treated for all purposes as the record holder or holders of such shares of Common Stock on such date; *provided, however,* that if the conversion is in connection with an underwritten offer of securities registered pursuant to the Securities Act or a merger, sale, financing, equity financing except as otherwise provided in the case of a mandatory conversion pursuant to Section 4(l) hereof, or liquidation of the Corporation or other event, the conversion may, at the option of any holder tendering Preferred Stock for conversion, be conditioned upon the closing of such transaction or upon the occurrence of such event, in which case the person(s) entitled to receive the Common Stock issuable upon such conversion of the Preferred Stock shall not be deemed to have converted such Preferred Stock until immediately prior to the closing of such transaction or the occurrence of such event.

(d) ***Adjustments to Conversion Price for Diluting Issues***.

(i) ***Special Definition***. For purposes of this Section 4(d), "**Additional Shares of Common**" means all shares of Common Stock issued (or, pursuant to Section 4(d)(iii), deemed to be issued) by the Corporation after the date of the filing of this Second Amended and Restated Certificate of Incorporation (the "**Filing Date**"), other than issuances or deemed issuances of, in each case only as approved by a majority of the Board of Directors (the "**Required Director Approval**"):

(1) shares of Common Stock and options, warrants or other rights to purchase Common Stock issued or issuable to employees, officers or Directors of, or consultants or advisors to, the Corporation or any subsidiary pursuant to stock grants, restricted stock purchase agreements, option plans, purchase plans, incentive programs or similar arrangements;

(2) shares of Common Stock upon the exercise or conversion of Options or Convertible Securities;

(3) shares of Common Stock issued or issuable as a dividend or Distribution on Preferred Stock or pursuant to any event for which adjustment is made pursuant to Sections 4(e), 4(f) or 4(g) hereof;

(4) shares of Common Stock issued or issuable in a registered public offering under the Securities Act;

(5) shares of Common Stock issued or issuable pursuant to the acquisition of another corporation by the Corporation by merger, purchase of substantially all of the assets or other reorganization, or license of technology by the Corporation;

(6) shares of Common Stock issued or issuable to banks, equipment lessors or other financial institutions or venture lenders pursuant to a debt financing or commercial leasing transaction; and

(7) shares of Common Stock issued or issuable in connection with sponsored research, collaboration, technology license, development, OEM, marketing or other similar agreements or strategic partnerships.

(ii) ***No Adjustment of Conversion Price***. No adjustment in the Conversion Price of any series of Preferred Stock shall be made in respect of the issuance of Additional Shares of Common unless the consideration per share (as determined pursuant to Section 4(d)(v)) for an Additional Share of Common issued or deemed to be issued by the Corporation is less than the Conversion Price in effect on the date of, and immediately prior to such issue, for such Preferred Stock.

(iii) ***Deemed Issue of Additional Shares of Common***. In the event the Corporation at any time or from time to time after the Filing Date shall issue any Options or Convertible Securities or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, 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, the conversion or exchange of such Convertible Securities or, in the case of Options for Convertible Securities, the exercise of such Options and the conversion or exchange of the underlying securities, shall be deemed to have been 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 shares are deemed to be issued:

(1) no further adjustment in the Conversion Price of any Preferred Stock shall be made upon the subsequent issue of Convertible Securities or shares of Common Stock in connection with the exercise of such Options or conversion or exchange of such Convertible Securities;

(2) if such Options or Convertible Securities by their terms provide, with the passage of time or otherwise, for any change in the consideration payable to the Corporation or in the number of shares of Common Stock issuable upon the exercise, conversion or exchange thereof (other than a change pursuant to the anti-dilution provisions of such Options or Convertible Securities such as this Section 4(d) or pursuant to Recapitalization provisions of such Options or Convertible Securities such as Sections 4(e), 4(f) and 4(g) hereof), the Conversion Price of the Preferred Stock and any subsequent adjustments based thereon shall be recomputed to reflect such change as if such change had been in effect as of the original issue thereof (or upon the occurrence of the record date with respect thereto);

(3) no readjustment pursuant to clause (2) above shall have the effect of increasing the Conversion Price of the Preferred Stock to an amount above the Conversion Price that would have resulted from any other issuances of Additional Shares of Common and any other adjustments provided for herein between the original adjustment date and such readjustment date;

(4) 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 Conversion Price of each Series of Preferred Stock 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 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 such exercised Options 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 deemed to have been then issued was the consideration actually received by the Corporation for the issue of such exercised Options, plus the consideration deemed to have been received by the Corporation (determined pursuant to Section 4(d)(v) hereof) upon the issue of the Convertible Securities with respect to which such Options were actually exercised; and

(5) 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 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 Conversion Price shall be adjusted pursuant to this Section 4(d)(iii) as of the actual date of their issuance.

(iv) ***Adjustment of Conversion Price Upon Issuance of Additional Shares of Common***. In the event this Corporation shall issue Additional Shares of Common (including Additional Shares of Common deemed to be issued pursuant to Section 4(d)(iii) hereof) without consideration or for a consideration per share less than the applicable Conversion Price of the Preferred Stock in effect on the date of and immediately prior to such issue, then, the Conversion Price of the affected Preferred Stock shall be reduced, concurrently with such issue, to a price (calculated to the nearest cent) determined by multiplying such Conversion Price by a fraction, the numerator of which shall be the number of shares of Common Stock outstanding immediately prior to such issue plus the number of shares which the aggregate consideration received by the Corporation for the total number of Additional Shares of Common so issued would purchase at such Conversion Price, and 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 so issued. Notwithstanding the foregoing, the Conversion Price shall not be reduced at such time if the amount of such reduction would be less than $0.01, but any such amount shall be carried forward, and a reduction will be made with respect to such amount at the time of, and together with, any subsequent reduction which, together with such amount and any other amounts so carried forward, equal $0.01 or more in the aggregate. For the purposes of this Subsection 4(d)(iv), all shares of Common Stock issuable upon conversion of all outstanding shares of Preferred Stock and the exercise and/or conversion of any other outstanding Convertible Securities and all outstanding Options and Options reserved for grant shall be deemed to be outstanding.

(v) ***Determination of Consideration***. For purposes of this Section 4(d), the consideration received by the Corporation for the issue (or deemed issue) of any Additional Shares of Common shall be computed as follows:

(1) ***Cash and Property***. Such consideration shall:

(A) insofar as it consists of cash, be computed at the aggregate amount of cash received by the Corporation before deducting any reasonable discounts, commissions or other expenses allowed, paid or incurred by the Corporation for any underwriting or otherwise in connection with such issuance;

(B) insofar as it consists of property other than cash, be computed at the fair market 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 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 Sections 4(d)(vii)(1)(A) and (B) hereof, as reasonably determined in good faith by the Board of Directors.

(2) ***Options and Convertible Securities***. The consideration per share received by the Corporation for Additional Shares of Common deemed to have been issued pursuant Section 4(d)(iii) hereof 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.

(e) ***Adjustments for Subdivisions or Combinations of Common Stock***. In the event the outstanding shares of Common Stock shall be subdivided (by stock split, by payment of a stock dividend or otherwise), into a greater number of shares of Common Stock, the Conversion Price of the Preferred Stock in effect immediately prior to such subdivision shall, concurrently with the effectiveness of such subdivision, be proportionately decreased. In the event the outstanding shares of Common Stock shall be combined (by reclassification or otherwise) into a lesser number of shares of Common Stock, the Conversion Prices in effect immediately prior to such combination shall, concurrently with the effectiveness of such combination, be proportionately increased.

(f) ***Adjustments for Subdivisions or Combinations of Preferred Stock***. In the event the outstanding shares of Preferred Stock shall be subdivided (by stock split, by payment of a stock dividend or otherwise), into a greater number of shares of Preferred Stock, the Original Issue Price and Liquidation Preference of the affected Preferred Stock (in each case in effect immediately prior to such subdivision) shall, concurrently with the effectiveness of such subdivision, be proportionately decreased. In the event the outstanding shares of Preferred Stock shall be combined (by reclassification or otherwise) into a lesser number of shares of Preferred Stock, the Original Issue Price and Liquidation Preference of the affected Preferred Stock (in each case in effect immediately prior to such combination) shall, concurrently with the effectiveness of such combination, be proportionately increased.

(g) ***Adjustments for Reclassification, Exchange and Substitution***. Subject to Section 3 hereof ("**Liquidation Rights**"), if the Common Stock issuable upon conversion of the Preferred Stock shall be changed into the same or a different number of shares of any other class or classes of stock, whether by capital reorganization, reclassification or otherwise (other than a subdivision or combination of shares provided for above), then, in any such event, in lieu of the number of shares of Common Stock which the holders would otherwise have been entitled to receive each holder of such Preferred Stock shall have the right thereafter to convert such shares of Preferred Stock into a number of shares of such other class or classes of stock which a holder of the number of shares of Common Stock deliverable upon conversion of such Preferred Stock immediately before that change would have been entitled to receive in such reorganization or reclassification, all subject to further adjustment as provided herein with respect to such other shares.

(h) ***Certificate as to Adjustments***. Upon the occurrence of each adjustment or readjustment of the Conversion Price pursuant to this Section 4 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 like certificate setting forth (i) such adjustments and readjustments, (ii) the Conversion Price 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 Preferred Stock.

(i) ***Waiver of Adjustment of Conversion Price***. Notwithstanding anything herein to the contrary, any downward adjustment of the Conversion Price of (i) the Series A Preferred Stock may be waived by the written consent or vote of the holders of a majority of the outstanding shares of Series A Preferred Stock and (ii) the Series B Preferred Stock may be waived by the written consent or vote of the holders of at least 60% of the outstanding shares of Series B Preferred Stock, in each case voting as a separate class on an as-converted to Common Stock basis, either before or after the issuance causing the adjustment. Any such waiver shall bind all future holders of shares of such Preferred Stock.

(j) ***Notices of Record Date***. In the event that this Corporation shall propose at any time:

(i) to declare any Distribution upon its Common Stock, whether in cash, property, stock or other securities, whether or not a regular cash dividend and whether or not out of earnings or earned surplus;

(ii) to effect any reclassification or recapitalization of its Common Stock outstanding involving a change in the Common Stock; or

(iii) to voluntarily liquidate or dissolve or to enter into any transaction deemed to be a liquidation, dissolution or winding up of the Corporation pursuant to Section 3(e) hereof;

then, in connection with each such event, this Corporation shall send to the holders of the Preferred Stock prior written notice of the date on which a record shall be taken for such Distribution (and specifying the date on which the holders of Common Stock shall be entitled thereto and, if applicable, the amount and character of such Distribution) or for determining rights to vote in respect of the matters referred to in subparagraphs (ii) and (iii) of this Section 4(j).

Such written notice shall be given by express courier, delivery charges prepaid, addressed to the holders of Preferred Stock at the address for each such holder as shown on the books of the Corporation and shall be deemed given on the date such notice is mailed.

The notice provisions set forth in this Section 4(j) may be shortened or waived prospectively or retrospectively by the consent or vote of the holders of at least a majority of the Preferred Stock, voting as a single class and on an as-converted to Common Stock basis.

(k) ***Reservation of Stock Issuable Upon Conversion***. The Corporation shall at all times reserve and keep available out of its authorized but unissued shares of Common Stock solely for the purpose of effecting the conversion of the shares of the Preferred Stock, such number of its shares of Common Stock as shall from time to time be sufficient to effect the conversion of all then outstanding shares of the Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of the Preferred Stock, the Corporation will 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.

5. **Voting**.

(a) ***Restricted Class Voting***. Except as otherwise expressly provided herein or as required by law, the holders of Preferred Stock and the holders of Common Stock shall vote together and not as separate classes.

(b) ***No Series Voting***. Other than as provided herein or required by law, there shall be no series voting.

(c) ***Preferred Stock***. Each holder of Preferred Stock shall be entitled to the number of votes equal to the number of shares of Common Stock into which the shares of Preferred Stock held by such holder could be converted as of the record date. Fractional votes shall not be permitted and any fractional voting rights resulting from the above formula (after aggregating all shares into which shares of Preferred Stock held by each holder could be converted) shall be disregarded. Except as otherwise expressly provided herein or as required by law, the holders of shares of the Preferred Stock shall be entitled to vote on all matters on which the Common Stock shall be entitled to vote. Holders of Preferred Stock shall be entitled to notice of any stockholders' meeting in accordance with the Bylaws of the Corporation.

(d) ***Election of Directors***.

(i) So long as at least 1,000,000 shares (as adjusted for Recapitalizations) of Series B Preferred Stock remain outstanding, the holders of Series B Preferred Stock, voting as a separate class, shall be entitled to elect one (1) member of the Corporation's Board of Directors (the "**Series B Director**"), at each meeting or pursuant to each consent of the Corporation's stockholders for the election of Directors, and to remove from office such Series B Director, and to fill any vacancy caused by the resignation, death or removal of such Series B Director.

(ii) So long as at least 1,000,000 shares (as adjusted for Recapitalizations) of Series A Preferred Stock remain outstanding, the holders of Series A Preferred Stock, voting as a separate class, shall be entitled to elect two (2) members of the Corporation's Board of Directors (the "**Series A Directors**"), at each meeting or pursuant to each consent of the Corporation's stockholders for the election of Directors, and to remove from office such Series A Directors, and to fill any vacancy caused by the resignation, death or removal of such Series A Directors.

(iii) The holders of Common Stock, voting as a separate class, shall be entitled to elect two (2) members of the Corporation's Board of Directors (the "**Common Directors**") at each meeting or pursuant to each consent of the Corporation's stockholders for the election of Directors, and to remove from office such Common Directors, and to fill any vacancy caused by the resignation, death or removal of any such Common Director.

(iv) Any remaining members of the Corporation's Board of Directors (the "**Remaining Directors**") shall be elected by a majority of the Common Stock and Preferred Stock, voting together as a single class and on an as-converted basis at each meeting or pursuant to each consent of the Corporation's stockholders for the election of Directors, and to remove from office such Remaining Directors, and to fill any vacancy caused by the resignation, death or removal of any such Remaining Director.

(v) If a vacancy on the Board of Directors is to be filled by the Board of Directors, only Directors elected by the same class or classes of stockholders as those who would be entitled to vote to fill such vacancy shall vote to fill such vacancy. If a vacancy on the Board of Directors is to be filled by the stockholders, such vacancy shall be filled by, and only by, the affirmative vote of the holders of the shares of the class or series of stock entitled to elect such Director, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of such stockholders.

(vi) Any Director elected as provided in this subsection (d) hereof may be removed, either with or without cause, by, and only by, the affirmative vote of the holders of the shares of the class or series of stock entitled to elect such Director or Directors, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders.

(e) ***Adjustment in Authorized Common Stock***. Subject to the protective provisions of Article V, Section 6 hereof and irrespective of any contrary provisions contained in Section 242(b)(2) of the General Corporation Law of the State of Delaware, the number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares of Common Stock then outstanding) by an affirmative vote of the holders of at least a majority of the stock of the Corporation without regard to class or series.

(f) ***Common Stock***. Each holder of shares of Common Stock shall be entitled to one vote for each share thereof held.

(g) ***California Section 2115***. To the extent that Section 2115 of the California General Corporation Law makes Section 708 subdivisions (a), (b) and (c) of the California General Corporation Law applicable to the Corporation, the Corporation's stockholders shall have the right to cumulate their votes in connection with the election of Directors as provided by Section 708 subdivisions (a), (b) and (c) of the California General Corporation Law.

6. **Amendments and Changes**. So long as at least 1,000,000 shares of Preferred Stock remain outstanding, the Corporation shall not (by amendment, merger, reclassification or otherwise), without first obtaining the approval (by vote or written consent as provided by law) of the holders of more than fifty percent (50%) of the outstanding shares of the Preferred Stock, voting as a single class on an as-converted to Common Stock basis:

(a) authorize or create (by reclassification, merger or otherwise) any new class or series of equity security (including any security convertible into or exercisable for any equity security) having rights, preferences or privileges with respect to dividends, redemption or payments upon liquidation senior to or on a parity with the Preferred Stock, or any series thereof, or having voting rights other than those granted to the Preferred Stock generally;

(b) increase or decrease (other than by conversion pursuant to this Second Amended and Restated Certificate of Incorporation) the total number of authorized shares of Common Stock or Preferred Stock or the number of shares reserved for issuance under the Corporation's 2012 Equity Incentive Plan and/or any other equity incentive plan of the Corporation without the Required Director Approval;

(c) consummate a Liquidation Event;

(d) redeem, purchase or otherwise acquire (or pay into or set aside for a sinking fund for such purpose) any share or shares of Common Stock; *provided*, *however*, that this restriction shall not apply to the repurchase of shares of Common Stock from employees, officers, or Directors of, or consultants to, the Corporation or other persons performing services for this Corporation or any subsidiary pursuant to the Corporation's Bylaws or agreements the form of which has been approved by the Required Director Approval under which this Corporation has the option to repurchase such shares upon the occurrence of certain events, such as the termination of employment or service, or pursuant to a right of first refusal;

(e) change the authorized number of Directors of this Corporation or the authorized number of Preferred Directors;

(f) pay or declare any dividend on any shares of stock of this Corporation;

(g) amend, alter, repeal or waive any provision of this Corporation's Second Amended and Restated Certificate of Incorporation or Bylaws or otherwise alter or change the rights, preferences or privileges of any series of Preferred Stock in a manner that adversely affects the rights, preferences or privileges of such Preferred Stock; or

(h) any other vote of the Preferred Stock by class or series required by law.

7. **Series B Protective Provisions**. In addition to any approval required by the protective provisions of Article V, Section 6 hereof, so long as at least 1,000,000 shares of Series B Preferred Stock remain outstanding, the Corporation shall not (by amendment, merger, reclassification or otherwise), without first obtaining the approval (by vote or written consent as provided by law) of the holders of at least sixty percent (60%) of the outstanding shares of the Series B Preferred Stock, voting as a single class on an as-converted to Common Stock basis:

(a) increase or decrease (other than by conversion pursuant to this Second Amended and Restated Certificate of Incorporation) the total number of authorized shares of Series B Preferred Stock; or

(b) amend, alter, repeal or waive (i) this Article V, Section 7 or (ii) any other term of this Corporation's Second Amended and Restated Certificate of Incorporation that adversely affects the rights, powers, preferences and other terms of Series B Preferred Stock, but does not so affect the rights, powers, preferences and other terms of the Series A Preferred Stock.

8. **Notices**. Any notice required by the provisions of this ARTICLE V to be given to the holders of Preferred Stock or Common Stock shall be deemed given if deposited in the United States mail, postage prepaid, and addressed to each holder of record at such holder's address appearing on the books of the Corporation.

ARTICLE VI

The Corporation is to have perpetual existence.

ARTICLE VII

Elections of Directors need not be by written ballot unless the Bylaws of the Corporation shall so provide.

ARTICLE VIII

Unless otherwise set forth herein, the number of Directors that constitute the Board of Directors of the Corporation shall be fixed by, or in the manner provided in, the Bylaws of the Corporation.

ARTICLE IX

In furtherance and not in limitation of the powers conferred by statute, the Board of Directors of the Corporation is expressly authorized to adopt, amend or repeal the Bylaws of the Corporation.

ARTICLE X

1. To the fullest extent permitted by the Delaware General Corporation Law as the same exists or as may hereafter be amended, a Director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for a breach of fiduciary duty as a Director. If the Delaware General Corporation Law is amended to authorize corporate action further eliminating or limiting the personal liability of Directors, then the liability of a Director of the Corporation shall be eliminated or limited to the fullest extent permitted by the Delaware General Corporation Law, as so amended.

2. The Corporation shall have the power to indemnify, to the extent permitted by the Delaware General Corporation Law, as it presently exists or may hereafter be amended from time to time, any person who 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 (a "**Proceeding**") by reason of the fact that he or she is or was a Director, officer, employee or agent 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, including service with respect to employee benefit plans, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with any such Proceeding.

3. Neither any amendment nor repeal of this ARTICLE X hereof, nor the adoption of any provision of this Corporation's Second Certificate of Incorporation inconsistent with this ARTICLE X hereof, shall eliminate or reduce the effect of this ARTICLE X hereof, in respect of any matter occurring, or any action or proceeding accruing or arising or that, but for this ARTICLE X hereof, would accrue or arise, prior to such amendment, repeal or adoption of an inconsistent provision.

ARTICLE XI

Meetings of stockholders may be held within or without the State of Delaware, as the Bylaws may provide. The books of the Corporation may be kept (subject to any provision contained in the statutes) outside of the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the Bylaws of the Corporation.

ARTICLE XII

In the event that a Director of the Corporation who is also a partner or employee of an entity that is a holder of Preferred Stock and that is in the business of investing and reinvesting in other entities, or an employee of an entity that manages such an entity (each, a "***Fund***"), acquires knowledge of a potential transaction or matter in such person's capacity as a partner or employee of the Fund or the manager or general partner of the Fund and that may be a corporate opportunity for both the Corporation and such Fund (a "***Corporate Opportunity***"), then (i) such Corporate Opportunity shall belong to such Fund, (ii) such Director shall, to the fullest extent permitted by law, have fully satisfied and fulfilled his fiduciary duty to the Corporation and its stockholders with respect to such Corporate Opportunity, and (iii) the Corporation, to the fullest extent permitted by law, waives any claim that such Corporate Opportunity constituted a corporate opportunity that should have been presented to the Corporation or any of its affiliates; *provided, however*, that such Director acts in good faith and such opportunity was not offered to, acquired, created or developed by, or otherwise came into possession of such person in his or her capacity as a Director of the Corporation; and *provided, further*, that nothing herein or otherwise shall limit the Corporation's right to pursue or consummate any transaction related to any Corporate Opportunity even if originated by any Director or any Fund.

BYLAWS

OF

ALLAKOS INC.

Adopted March 9, 2012, as amended

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BYLAWS
OF
ALLAKOS INC.

ARTICLE I
MEETINGS OF STOCKHOLDERS

1.1 Place of Meetings. Meetings of stockholders of Allakos Inc. (the "Company") shall be held at any place, within or outside the State of Delaware, determined by the Company's board of directors (the "Board"). The Board may, in its sole discretion, determine that a meeting of stockholders shall not be held at any place, but may instead be held solely by means of remote communication as authorized by Section 211(a)(2) of the Delaware General Corporation Law (the "DGCL"). In the absence of any such designation or determination, stockholders' meetings shall be held at the Company's principal executive office.

1.2 Annual Meeting. An annual meeting of stockholders shall be held for the election of directors at such date and time as may be designated by resolution of the Board from time to time. Any other proper business may be transacted at the annual meeting. The Company shall not be required to hold an annual meeting of stockholders, provided that (i) the stockholders are permitted to act by written consent under the Company's certificate of incorporation and these bylaws, (ii) the stockholders take action by written consent to elect directors and (iii) the stockholders unanimously consent to such action or, if such consent is less than unanimous, all of the directorships to which directors could be elected at an annual meeting held at the effective time of such action are vacant and are filled by such action.

1.3 Special Meeting. A special meeting of the stockholders may be called at any time by the Board, Chairperson of the Board, Chief Executive Officer or President (in the absence of a Chief Executive Officer) or by one or more stockholders holding shares in the aggregate entitled to cast not less than 10% of the votes at that meeting.

If any person(s) other than the Board calls a special meeting, the request shall:

(i) be in writing;

(ii) specify the time of such meeting and the general nature of the business proposed to be transacted; and

(iii) be delivered personally or sent by registered mail or by facsimile transmission to the Chairperson of the Board, the Chief Executive Officer, the President (in the absence of a Chief Executive Officer) or the Secretary of the Company.

The officer(s) receiving the request shall cause notice to be promptly given to the stockholders entitled to vote at such meeting, in accordance with these bylaws, that a meeting will be held at the time requested by the person or persons calling the meeting. No business may be transacted at such special meeting other than the business specified in such notice to stockholders. Nothing contained in this paragraph of this Section 1.3 shall be construed as limiting, fixing, or affecting the time when a meeting of stockholders called by action of the Board may be held.

1.4 Notice of Stockholders' Meetings. Whenever stockholders are required or permitted to take any action at a meeting, a written notice of the meeting shall be given which shall state the place, if any, date and hour of the meeting, the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at such meeting, the record date for determining the stockholders entitled to vote at the meeting, if such date is different from the record date for determining stockholders entitled to notice of the meeting, and, in the case of a special meeting, the purpose or purposes for which the meeting is called. Except as otherwise provided in the DGCL, the certificate of incorporation or these bylaws, the written notice of any meeting of stockholders shall be given not less than 10 nor more than 60 days before the date of the meeting to each stockholder entitled to vote at such meeting as of the record date for determining the stockholders entitled to notice of the meeting.

1.5 Quorum. Except as otherwise provided by law, the certificate of incorporation or these bylaws, at each meeting of stockholders the presence in person or by proxy of the holders of shares of stock having a majority of the votes which could be cast by the holders of all outstanding shares of stock entitled to vote at the meeting shall be necessary and sufficient to constitute a quorum. Where a separate vote by a class or series or classes or series is required, a majority of the outstanding shares of such class or series or classes or series, present in person or represented by proxy, shall constitute a quorum entitled to take action with respect to that vote on that matter, except as otherwise provided by law, the certificate of incorporation or these bylaws.

If, however, such quorum is not present or represented at any meeting of the stockholders, then either (i) the chairperson of the meeting, or (ii) the stockholders entitled to vote at the meeting, present in person or represented by proxy, shall have the power to adjourn the meeting from time to time, in the manner provided in Section 1.6, until a quorum is present or represented.

1.6 Adjourned Meeting; Notice. Any meeting of stockholders, annual or special, may adjourn from time to time to reconvene at the same or some other place, and notice need not be given of the adjourned meeting if the time, place, if any, thereof, and the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at such adjourned meeting are announced at the meeting at which the adjournment is taken. At the adjourned meeting, the Company may transact any business which might have been transacted at the original meeting. If the adjournment is for more than 30 days, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting. If after the adjournment a new record date for stockholders entitled to vote is fixed for the adjourned meeting, the Board shall fix a new record date for notice of such adjourned meeting in accordance with Section 213(a) of the DGCL and Section 1.10 of these bylaws, and shall give notice of the adjourned meeting to each stockholder of record entitled to vote at such adjourned meeting as of the record date fixed for notice of such adjourned meeting.

1.7 Conduct of Business. Meetings of stockholders shall be presided over by the Chairperson of the Board, if any, or in his or her absence by the Vice Chairperson of the Board, if any, or in the absence of the foregoing persons by the Chief Executive Officer, or in the absence of the foregoing persons by the President, or in the absence of the foregoing persons by a Vice President, or in the absence of the foregoing persons by a chairperson designated by the Board, or in the absence of such designation by a chairperson chosen at the meeting. The Secretary shall act as secretary of the meeting, but in his or her absence the chairperson of the meeting may appoint any person to act as secretary of the meeting. The chairperson of any meeting of stockholders shall determine the order of business and the procedure at the meeting, including such regulation of the manner of voting and the conduct of business.

1.8 Voting. The stockholders entitled to vote at any meeting of stockholders shall be determined in accordance with the provisions of Section 1.10 of these bylaws, subject to Section 217 (relating to voting rights of fiduciaries, pledgors and joint owners of stock) and Section 218 (relating to voting trusts and other voting agreements) of the DGCL.

Except as may be otherwise provided in the certificate of incorporation, each stockholder entitled to vote at any meeting of stockholders shall be entitled to one vote for each share of capital stock held by such stockholder which has voting power upon the matter in question. Voting at meetings of stockholders need not be by written ballot and, unless otherwise required by law, need not be conducted by inspectors of election unless so determined by the holders of shares of stock having a majority of the votes which could be cast by the holders of all outstanding shares of stock entitled to vote thereon which are present in person or by proxy at such meeting. If authorized by the Board, such requirement of a written ballot shall be satisfied by a ballot submitted by electronic transmission (as defined in Section 7.2 of these bylaws), provided that any such electronic transmission must either set forth or be submitted with information from which it can be determined that the electronic transmission was authorized by the stockholder or proxy holder.

Except as otherwise required by law, the certificate of incorporation or these bylaws, in all matters other than the election of directors, the affirmative vote of a majority of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the subject matter shall be the act of the stockholders. Except as otherwise required by law, the certificate of incorporation or these bylaws, directors shall be elected by a plurality of the voting power of the shares present in person or represented by proxy at the meeting and entitled to vote on the election of directors. Where a separate vote by a class or series or classes or series is required, in all matters other than the election of directors, the affirmative vote of the majority of shares of such class or series or classes or series present in person or represented by proxy at the meeting shall be the act of such class or series or classes or series, except as otherwise provided by law, the certificate of incorporation or these bylaws.

1.9 Stockholder Action by Written Consent Without a Meeting. Unless otherwise provided in the certificate of incorporation, any action required by the DGCL to be taken at any annual or special meeting of stockholders of a corporation, or any action which may be taken at any annual or special meeting of such stockholders, may be taken without a meeting, without prior notice, and without a vote, if a consent or consents in writing, setting forth the action so taken, shall be signed by the holders of outstanding stock having not less 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 thereon were present and voted.

An electronic transmission (as defined in Section 7.2) consenting to an action to be taken and transmitted by a stockholder or proxy holder, or by a person or persons authorized to act for a stockholder or proxy holder, shall be deemed to be written, signed and dated for purposes of this section, provided that any such electronic transmission sets forth or is delivered with information from which the Company can determine (i) that the electronic transmission was transmitted by the stockholder or proxy holder or by a person or persons authorized to act for the stockholder or proxy holder and (ii) the date on which such stockholder or proxy holder or authorized person or persons transmitted such electronic transmission.

In the event that the Board shall have instructed the officers of the Company to solicit the vote or written consent of the stockholders of the Company, an electronic transmission of a stockholder written consent given pursuant to such solicitation may be delivered to the Secretary or the President of the Company or to a person designated by the Secretary or the President. The Secretary or the President of the Company or a designee of the Secretary or the President shall cause any such written consent by electronic transmission to be reproduced in paper form and inserted into the corporate records.

Prompt notice of the taking of the 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 notice of such meeting had been the date that written consents signed by a sufficient number of holders to take the action were delivered to the Company as provided in Section 228 of the DGCL. In the event that the action which is consented to is such as would have required the filing of a certificate under any provision of the DGCL, if such action had been voted on by stockholders at a meeting thereof, the certificate filed under such provision shall state, in lieu of any statement required by such provision concerning any vote of stockholders, that written consent has been given in accordance with Section 228 of the DGCL.

1.10 Record Dates. In order that the Company may determine the stockholders entitled to notice of any meeting of stockholders or any adjournment thereof, the Board may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board and which record date shall not be more than 60 nor less than 10 days before the date of such meeting. If the Board so fixes a date, such date shall also be the record date for determining the stockholders entitled to vote at such meeting unless the Board determines, at the time it fixes such record date, that a later date on or before the date of the meeting shall be the date for making such determination.

If no record date is fixed by the Board, the record date for determining stockholders entitled to notice of and to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held.

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 may fix a new record date for determination of stockholders entitled to vote at the adjourned meeting, and in such case shall also fix as the record date for stockholders entitled to notice of such adjourned meeting the same or an earlier date as that fixed for determination of stockholders entitled to vote in accordance with the provisions of Section 213 of the DGCL and this Section 1.10 at the adjourned meeting.

In order that the Company may determine the stockholders entitled to consent to corporate action in writing without a meeting, the Board may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board, and which date shall not be more than 10 days after the date upon which the resolution fixing the record date is adopted by the Board. If no record date has been fixed by the Board, the record date for determining stockholders entitled to consent to corporate action in writing without a meeting, when no prior action by the Board is required by law, shall be the first date on which a signed written consent setting forth the action taken or proposed to be taken is delivered to the Company in accordance with applicable law. If no record date has been fixed by the Board and prior action by the Board is required by law, the record date for determining stockholders entitled to consent to corporate action in writing without a meeting shall be at the close of business on the day on which the Board adopts the resolution taking such prior action.

In order that the Company may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than 60 days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board adopts the resolution relating thereto.

1.11 Proxies. Each stockholder entitled to vote at a meeting of stockholders or to express consent or dissent to corporate action in writing without a meeting may authorize another person or persons to act for such stockholder by proxy authorized by an instrument in writing or by a transmission permitted by law filed in accordance with the procedure established for the meeting, but no such proxy shall be voted or acted upon after three years from its date, unless the proxy provides for a longer period. The revocability of a proxy that states on its face that it is irrevocable shall be governed by the provisions of Section 212 of the DGCL.

1.12 List of Stockholders Entitled to Vote. The officer who has charge of the stock ledger of the Company shall prepare and make, at least ten days before every meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting; provided, however, if the record date for determining the stockholders entitled to vote is less than 10 days before the meeting date, the list shall reflect the stockholders entitled to vote as of the tenth day before the meeting date, arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder. The Company shall not be required to include electronic mail addresses or other electronic contact information

on such list. Such list shall be open to the examination of any stockholder for any purpose germane to the meeting for a period of at least ten 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 Company's principal place of business. In the event that the Company determines to make the list available on an electronic network, the Company may take reasonable steps to ensure that such information is available only to stockholders of the Company. 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 examined 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.

ARTICLE II
DIRECTORS

2.1 Powers. The business and affairs of the Company shall be managed by or under the direction of the Board, except as may be otherwise provided in the DGCL or the certificate of incorporation.

2.2 Number of Directors. The Board shall consist of one or more members, each of whom shall be a natural person. Unless the certificate of incorporation fixes the number of directors, the number of directors shall be determined from time to time by resolution of the Board. No reduction of the authorized number of directors shall have the effect of removing any director before that director's term of office expires.

2.3 Election, Qualification and Term of Office of Directors. Except as provided in Section 2.4 of these bylaws, and subject to Sections 1.2 and 1.9 of these bylaws, directors shall be elected at each annual meeting of stockholders. Directors need not be stockholders unless so required by the certificate of incorporation or these bylaws. The certificate of incorporation or these bylaws may prescribe other qualifications for directors. Each director shall hold office until such director's successor is elected and qualified or until such director's earlier death, resignation or removal.

2.4 Resignation and Vacancies. Any director may resign at any time upon notice given in writing or by electronic transmission to the Company. A resignation is effective when the resignation is delivered unless the resignation specifies a later effective date or an effective date determined upon the happening of an event or events. A resignation which is conditioned upon the director failing to receive a specified vote for reelection as a director may provide that it is irrevocable. Unless otherwise provided in the certificate of incorporation or these bylaws, when one or more directors resign from the Board, effective at a future date, a majority of the directors then in office, including those who have so resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective.

Unless otherwise provided in the certificate of incorporation or these bylaws:

(i) Vacancies and newly created directorships resulting from any increase in the authorized number of directors elected by all of the stockholders having the right to vote as a single class may be filled by a majority of the directors then in office, although less than a quorum, or by a sole remaining director.

(ii) Whenever the holders of any class or classes of stock or series thereof are entitled to elect one or more directors by the provisions of the certificate of incorporation, vacancies and newly created directorships of such class or classes or series may be filled by a majority of the directors elected by such class or classes or series there of then in office, or by a sole remaining director so elected. If at any time, by reason of death or resignation or other cause, the Company should have no directors in office, then any officer or any stockholder or an executor, administrator, trustee or guardian of a stockholder, or other fiduciary entrusted with like responsibility for the person or estate of a stockholder, may call a special meeting of stockholders in accordance with the provisions of the certificate of incorporation or these bylaws, or may apply to the Court of Chancery for a decree summarily ordering an election as provided in Section 211 of the DGCL.

If, at the time of filling any vacancy or any newly created directorship, the directors then in office constitute less than a majority of the whole Board (as constituted immediately prior to any such increase), the Court of Chancery may, upon application of any stockholder or stockholders holding at least 10% of the voting stock at the time outstanding having the right to vote for such directors, summarily order an election to be held to fill any such vacancies or newly created directorships, or to replace the directors chosen by the directors then in office as aforesaid, which election shall be governed by the provisions of Section 211 of the DGCL as far as applicable.

A director elected to fill a vacancy shall be elected for the unexpired term of his or her predecessor in office and until such director's successor is elected and qualified, or until such director's earlier death, resignation or removal.

2.5 Place of Meetings; Meetings by Telephone. The Board may hold meetings, both regular and special, either within or outside the State of Delaware.

Unless otherwise restricted by the certificate of incorporation or these bylaws, members of the Board, or any committee designated by the Board, may participate in a meeting of the Board, or any committee, by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and such participation in a meeting shall constitute presence in person at the meeting.

2.6 Conduct of Business. Meetings of the Board shall be presided over by the Chairperson of the Board, if any, or in his or her absence by the Vice Chairperson of the Board, if any, or in the absence of the foregoing persons by a chairperson designated by the Board, or in the absence of such designation by a chairperson chosen at the meeting. The Secretary shall act as secretary of the meeting, but in his or her absence the chairperson of the meeting may appoint any person to act as secretary of the meeting.

2.7 Regular Meetings. Regular meetings of the Board may be held without notice at such time and at such place as shall from time to time be determined by the Board.

2.8 Special Meetings; Notice. Special meetings of the Board for any purpose or purposes may be called at any time by the Chairperson of the Board, the Chief Executive Officer, the President, the Secretary or any two directors.

Notice of the time and place of special meetings shall be:

(i) delivered personally by hand, by courier or by telephone;

(ii) sent by United States first-class mail, postage prepaid;

(iii) sent by facsimile; or

(iv) sent by electronic mail,

directed to each director at that director's address, telephone number, facsimile number or electronic mail address, as the case may be, as shown on the Company's records.

If the notice is (i) delivered personally by hand, by courier or by telephone, (ii) sent by facsimile or (iii) sent by electronic mail, it shall be delivered or sent at least 24 hours before the time of the holding of the meeting. If the notice is sent by United States mail, it shall be deposited in the United States mail at least four days before the time of the holding of the meeting. Any oral notice may be communicated to the director. The notice need not specify the place of the meeting (if the meeting is to be held at the Company's principal executive office) nor the purpose of the meeting.

2.9 Quorum; Voting. At all meetings of the Board, a majority of the total authorized number of directors shall constitute a quorum for the transaction of business. If a quorum is not present at any meeting of the Board, then the directors present thereat may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum is present. A meeting at which a quorum is initially present may continue to transact business notwithstanding the withdrawal of directors, if any action taken is approved by at least a majority of the required quorum for that meeting.

The vote of a majority of the directors present at any meeting at which a quorum is present shall be the act of the Board, except as may be otherwise specifically provided by statute, the certificate of incorporation or these bylaws.

If the certificate of incorporation provides that one or more directors shall have more or less than one vote per director on any matter, every reference in these bylaws to a majority or other proportion of the directors shall refer to a majority or other proportion of the votes of the directors.

2.10 Board Action by Written Consent Without a Meeting. Unless otherwise restricted by the certificate of incorporation or these bylaws, any action required or permitted to be taken at any meeting of the Board, or of any committee thereof, may be taken without a meeting if all members of the Board or committee, as the case may be, consent thereto in writing or by electronic transmission and the writing or writings or electronic transmission or transmissions are filed with the minutes of proceedings of the Board or committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

2.11 Fees and Compensation of Directors. Unless otherwise restricted by the certificate of incorporation or these bylaws, the Board shall have the authority to fix the compensation of directors.

2.12 Removal of Directors. Unless otherwise restricted by statute, the certificate of incorporation or these bylaws, any director or the entire Board 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.

No reduction of the authorized number of directors shall have the effect of removing any director prior to the expiration of such director's term of office.

ARTICLE III
COMMITTEES

3.1 Committees of Directors. The Board may designate one or more committees, each committee to consist of one or more of the directors of the Company. The Board 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 thereof 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 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 or in these bylaws, shall have and may exercise all the powers and authority of the Board in the management of the business and affairs of the Company, and may authorize the seal of the Company to be affixed to all papers that may require it; but no such committee shall have the power or authority to (i) approve or adopt, or recommend to the stockholders, any action or matter (other than the election or removal of directors) expressly required by the DGCL to be submitted to stockholders for approval, or (ii) adopt, amend or repeal any bylaw of the Company.

3.2 Committee Minutes. Each committee shall keep regular minutes of its meetings and report the same to the Board when required.

3.3 Meetings and Actions of Committees. Meetings and actions of committees shall be governed by, and held and taken in accordance with, the provisions of:

(i) Section 2.5 (Place of Meetings; Meetings by Telephone);

(ii) Section 2.7 (Regular Meetings);

(iii) Section 2.8 (Special Meetings; Notice);

(iv) Section 2.9 (Quorum; Voting);

(v) Section 2.10 (Board Action by Written Consent Without a Meeting); and

(vi) Section 7.5 (Waiver of Notice)

with such changes in the context of those bylaws as are necessary to substitute the committee and its members for the Board and its members. However:

(i) the time of regular meetings of committees may be determined either by resolution of the Board or by resolution of the committee;

(ii) special meetings of committees may also be called by resolution of the Board; and

(iii) notice of special meetings of committees shall also be given to all alternate members, who shall have the right to attend all meetings of the committee. The Board may adopt rules for the government of any committee not inconsistent with the provisions of these bylaws.

Any provision in the certificate of incorporation providing that one or more directors shall have more or less than one vote per director on any matter shall apply to voting in any committee or subcommittee, unless otherwise provided in the certificate of incorporation or these bylaws.

3.4 Subcommittees. Unless otherwise provided in the certificate of incorporation, these bylaws or the resolutions of the Board designating the committee, a committee may create one or more subcommittees, each subcommittee to consist of one or more members of the committee, and delegate to a subcommittee any or all of the powers and authority of the committee.

ARTICLE IV
OFFICERS

4.1 Officers. The officers of the Company shall be a President and a Secretary. The Company may also have, at the discretion of the Board, a Chairperson of the Board, a Vice Chairperson of the Board, a Chief Executive Officer, one or more Vice Presidents, a Chief Financial Officer, a Treasurer, one or more Assistant Treasurers, one or more Assistant Secretaries, and any such other officers as may be appointed in accordance with the provisions of these bylaws. Any number of offices may be held by the same person.

4.2 Appointment of Officers. The Board shall appoint the officers of the Company, except such officers as may be appointed in accordance with the provisions of Section 4.3 of these bylaws.

4.3 Subordinate Officers. The Board may appoint, or empower the Chief Executive Officer or, in the absence of a Chief Executive Officer, the President, to appoint, such other officers and agents as the business of the Company may require. Each of such officers and agents shall hold office for such period, have such authority, and perform such duties as are provided in these bylaws or as the Board may from time to time determine.

4.4 Removal and Resignation of Officers. Any officer may be removed, either with or without cause, by an affirmative vote of the majority of the Board at any regular or special meeting of the Board or, except in the case of an officer chosen by the Board, by any officer upon whom such power of removal may be conferred by the Board.

Any officer may resign at any time by giving written notice to the Company. Any resignation shall take effect at the date of the receipt of that notice or at any later time specified in that notice. Unless otherwise specified in the notice of resignation, the acceptance of the resignation shall not be necessary to make it effective. Any resignation is without prejudice to the rights, if any, of the Company under any contract to which the officer is a party.

4.5 Vacancies in Offices. Any vacancy occurring in any office of the Company shall be filled by the Board or as provided in Section 4.3.

4.6 Representation of Shares of Other Corporations. Unless otherwise directed by the Board, the President or any other person authorized by the Board or the President is authorized to vote, represent and exercise on behalf of the Company all rights incident to any and all shares of any other corporation or corporations standing in the name of the Company. The authority granted herein may be exercised either by such person directly or by any other person authorized to do so by proxy or power of attorney duly executed by such person having the authority.

4.7 Authority and Duties of Officers. Except as otherwise provided in these bylaws, the officers of the Company shall have such powers and duties in the management of the Company as may be designated from time to time by the Board arid, to the extent not so provided, as generally pertain to their respective offices, subject to the control of the Board.

ARTICLE V
INDEMNIFICATION

5.1 Indemnification of Directors and Officers in Third Party Proceedings. Subject to the other provisions of this Article V, the Company shall indemnify, to the fullest extent permitted by the DGCL; as now or hereinafter in effect, any person who 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 (a "Proceeding") (other than an action by or in the right of the Company) by reason of the fact that such person is or was a director or officer of the Company, or is or was a director or officer of the Company serving at the request of the Company 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 actually and reasonably incurred by such person in connection with such Proceeding if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the Company, and, with

respect to any criminal action or proceeding, had no reasonable cause to believe such person's conduct was unlawful. The termination of any Proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent, shall not, of itself, create a presumption that the person did not act in good faith and in a manner which such person reasonably believed to be in or not opposed to the best interests of the Company, and, with respect to any criminal action or proceeding, had reasonable cause to believe that such person's conduct was unlawful.

5.2 Indemnification of Directors and Officers in Actions by or in the Right of the Company. Subject to the other provisions of this Article V, the Company shall indemnify, to the fullest extent permitted by the DGCL, as now or hereinafter in effect, any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the Company to procure a judgment in its favor by reason of the fact that such person is or was a director or officer of the Company, or is or was a director or officer of the Company serving at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the Company; except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the Company unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

5.3 Successful Defense. To the extent that a present or former director or officer of the Company has been successful on the merits or otherwise in defense of any action, suit or proceeding described in Section 5.1 or Section 5.2, or in defense of any claim, issue or matter therein, such person shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection therewith.

5.4 Indemnification of Others. Subject to the other provisions of this Article V, the Company shall have power to indemnify its employees and agents to the extent not prohibited by the DGCL or other applicable law. The Board shall have the power to delegate to such person or persons the determination of whether employees or agents shall be indemnified.

5.5 Advanced Payment of Expenses. Expenses (including attorneys' fees) incurred by an officer or director of the Company in defending any Proceeding shall be paid by the Company in advance of the final disposition of such Proceeding upon receipt of a written request therefor (together with documentation reasonably evidencing such expenses) and an undertaking by or on behalf of the person to repay such amounts if it shall ultimately be determined that the person is not entitled to be indemnified under this Article V or the DGCL. Such expenses (including attorneys' fees) incurred by former directors and officers or other employees and agents of the Company or by persons serving at the request of the Company as directors, officers, employees or agents of another corporation, partnership, joint venture, trust or other enterprise

may be so paid upon such terms and conditions, if any, as the Company deems appropriate. The right to advancement of expenses shall not apply to any Proceeding for which indemnity is excluded pursuant to these bylaws, but shall apply to any Proceeding referenced in Section 5.6(ii) or 5.6(iii) prior to a determination that the person is not entitled to be indemnified by the Company.

Notwithstanding the foregoing, unless otherwise determined pursuant to Section 5.8, no advance shall be made by the Company to an officer of the Company (except by reason of the fact that such officer is or was a director of the Company, in which event this paragraph shall not apply) in any Proceeding if a determination is reasonably and promptly made (i) by a majority vote of the directors who are not parties to such Proceeding, even though less than a quorum, or (ii) by a committee of such directors designated by majority vote of such directors, even though less than a quorum, or (iii) if there are no such directors, or if such directors so direct, by independent legal counsel in a written opinion, that facts known to the decision making party at the time such determination is made demonstrate clearly and convincingly that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the Company.

5.6 Limitation on Indemnification. Subject to the requirements in Section 5.3 and the DGCL, the Company shall not be obligated to indemnify any person pursuant to this Article V in connection with any Proceeding (or any part of any Proceeding):

(i) for which payment has actually been made to or on behalf of such person under any statute, insurance policy, indemnity provision, vote or otherwise, except with respect to any excess beyond the amount paid;

(ii) for an accounting or disgorgement of profits pursuant to Section 16(b) of the Securities Exchange Act of 1934, as amended, or similar provisions of federal, state or local statutory law or common law, if such person is held liable therefor (including pursuant to any settlement arrangements);

(iii) for any reimbursement of the Company by such person of any bonus or other incentive-based or equity-based compensation or of any profits realized by such person from the sale of securities of the Company, as required in each case under the Securities Exchange Act of 1934, as amended (including any such reimbursements that arise from an accounting restatement of the Company pursuant to Section 304 of the Sarbanes-Oxley Act of 2002 (the "Sarbanes-Oxley Act"), or the payment to the Company of profits arising from the purchase and sale by such person of securities in violation of Section 306 of the Sarbanes-Oxley Act), if such person is held liable therefor (including pursuant to any settlement arrangements);

(iv) initiated by such person, including any Proceeding (or any part of any Proceeding) initiated by such person against the Company or its directors, officers, employees, agents or other indemnitees, unless (a) the Board authorized the Proceeding (or the relevant part of the Proceeding) prior to its initiation, (b) the Company provides the indemnification, in its sole discretion, pursuant to the powers vested in the Company under applicable law, (c) otherwise required to be made under Section 5.7 or (d) otherwise required by applicable law; or

(v) if prohibited by applicable law.

5.7 Determination; Claim. If a claim for indemnification or advancement of expenses under this Article V is not paid by the Company or on its behalf within 90 days after receipt by the Company of a written request therefor, the claimant shall be entitled to an adjudication by a court of competent jurisdiction of his or her entitlement to such indemnification or advancement of expenses. To the extent not prohibited by law, the Company shall indemnify such person against all expenses actually and reasonably incurred by such person in connection with any action for indemnification or advancement of expenses from the Company under this Article V, to the extent such person is successful in such action, and, if requested by such person, shall advance such expenses to such person, subject to the provisions of Section 5.5. In any such suit, the Company shall, to the fullest extent not prohibited by law, have the burden of proving that the claimant is not entitled to the requested indemnification or advancement of expenses.

5.8 Non-Exclusivity of Rights. The indemnification and advancement of expenses provided by, or granted pursuant to, this Article V shall not be deemed exclusive of any other rights to which those seeking indemnification or advancement of expenses may be entitled under the certificate of incorporation or any statute, bylaw, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in such person's official capacity and as to action in another capacity while holding such office. The Company is specifically authorized to enter into individual contracts with any or all of its directors, officers, employees or agents respecting indemnification and advancement of expenses, to the fullest extent not prohibited by the DGCL or other applicable law.

5.9 Insurance. The Company may purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the Company, or is or was serving at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against any liability asserted against such person and incurred by such person in any such capacity, or arising out of such person's status as such, whether or not the Company would have the power to indemnify such person against such liability under the provisions of the DGCL.

5.10 Survival. The rights to indemnification and advancement of expenses conferred by this Article V shall continue as to a person who has ceased to be a director, officer, employee or agent and shall inure to the benefit of the heirs, executors and administrators of such a person.

5.11 Effect of Repeal or Modification. Any amendment, alteration or repeal of this Article V shall not adversely affect any right or protection hereunder of any person in respect of any act or omission occurring prior to such amendment, alteration or repeal.

5.12 Certain Definitions. For purposes of this Article V, references to the "Company" shall include, in addition to the resulting corporation, any constituent corporation (including any constituent of a constituent) absorbed in a consolidation or merger which, if its separate existence had continued, would have had power and authority to indemnify its directors, officers, employees or agents, so that any person who is or was a director, officer, employee or agent of such constituent corporation, or is or was serving at the request of such constituent corporation as

a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, shall stand in the same position under the provisions of this Article V with respect to the resulting or surviving corporation as such person would have with respect to such constituent corporation if its separate existence had continued. For purposes of this Article V, references to "other enterprises" shall include employee benefit plans; references to "fines" shall include any excise taxes assessed on a person with respect to an employee benefit plan; and references to "serving at the request of the Company" shall include any service as a director, officer, employee or agent of the Company which imposes duties on, or involves services by, such director, officer, employee or agent with respect to an employee benefit plan, its participants or beneficiaries; and a person who acted in good faith and in a manner such person reasonably believed to be in the interest of the participants and beneficiaries of an employee benefit plan shall be deemed to have acted in a manner "not opposed to the best interests of the Company" as referred to in this Article V.

ARTICLE VI
STOCK

6.1 Stock Certificates; Partly Paid Shares. The shares of the Company shall be represented by certificates, provided that the Board may provide by resolution or resolutions that some or all of any or all classes or series of its stock shall be uncertificated shares. Any such resolution shall not apply to shares represented by a certificate until such certificate is surrendered to the Company. Every holder of stock represented by certificates shall be entitled to have a certificate signed by, or in the name of the Company by the Chairperson of the Board or Vice-Chairperson of the Board, or the President or a Vice-President, and by the Treasurer or an Assistant Treasurer, or the Secretary or an Assistant Secretary of the Company representing the number of shares registered in certificate form. Any or all of the signatures on the certificate may be a facsimile. In case any officer, transfer agent or registrar who has signed or whose facsimile signature has been placed upon a certificate has ceased to be such officer, transfer agent or registrar before such certificate is issued, it may be issued by the Company with the same effect as if such person were such officer, transfer agent or registrar at the date of issue. The Company shall not have power to issue a certificate in bearer form.

The Company may issue the whole or any part of its shares as partly paid and subject to call for the remainder of the consideration to be paid therefor. Upon the face or back of each stock certificate issued to represent any such partly paid shares, or upon the books and records of the Company in the case of uncertificated partly paid shares, the total amount of the consideration to be paid therefor and the amount paid thereon shall be stated. Upon the declaration of any dividend on fully paid shares, the Company shall declare a dividend upon partly paid shares of the same class, but only upon the basis of the percentage of the consideration actually paid thereon.

6.2 Special Designation on Certificates. If the Company is authorized to issue more than one class of stock or more than one series of any class, then the powers, the designations, the preferences, and the 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 the certificate that the

Company shall issue to represent such class or series of stock; provided that, except as otherwise provided in Section 202 of the DGCL, in lieu of the foregoing requirements there may be set forth on the face or back of the certificate that the Company shall issue to represent such class or series of stock, a statement that the Company will furnish without charge to each stockholder who so requests 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. Within a reasonable time after the issuance or transfer of uncertificated stock, the Company shall send to the registered owner thereof a written notice containing the information required to be set forth or stated on certificates pursuant to this Section 6.2 or Sections 156, 202(a) or 218(a) of the DGCL or with respect to this Section 6.2 a statement that the Company will furnish without charge to each stockholder who so requests 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. Except as otherwise expressly provided by law, the rights and obligations of the holders of uncertificated stock and the rights and obligations of the holders of certificates representing stock of the same class and series shall be identical.

6.3 Lost Certificates. Except as provided in this Section 6.3, no new certificates for shares shall be issued to replace a previously issued certificate unless the latter is surrendered to the Company and cancelled at the same time. The Company may issue a new certificate of stock or uncertificated shares in the place of any certificate theretofore issued by it, alleged to have been lost, stolen or destroyed, and the Company may require the owner of the lost, stolen or destroyed certificate, or such owner's legal representative, to give the Company a bond sufficient to indemnify it against any claim that may be made against it on account of the alleged loss, theft or destruction of any such certificate or the issuance of such new certificate or uncertificated shares.

6.4 Dividends. The Board, subject to any restrictions contained in the certificate of incorporation or applicable law, may declare and pay dividends upon the shares of the Company's capital stock. Dividends may be paid in cash, in property, or in shares of the Company's capital stock, subject to the provisions of the certificate of incorporation.

The Board may set apart out of any of the funds of the Company available for dividends a reserve or reserves for any proper purpose and may abolish any such reserve.

6.5 Stock Transfer Agreements. The Company shall have power to enter into and perform any agreement with any number of stockholders of any one or more classes of stock of the Company to restrict the transfer of shares of stock of the Company of anyone or more classes owned by such stockholders in any manner not prohibited by the DGCL.

6.6 Registered Stockholders. The Company:

(i) shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive dividends and to vote as such owner;

(ii) shall be entitled to hold liable for calls and assessments the person registered on its books as the owner of shares; and

(iii) shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of another person, whether or not it shall have express or other notice thereof, except as otherwise provided by the laws of Delaware.

6.7 Transfers. Transfers of record of shares of stock of the Company shall be made only upon its books by the holders thereof, in person or by an attorney duly authorized, and, if such stock is certificated, upon the surrender of a certificate or certificates for a like number of shares, properly endorsed or accompanied by proper evidence of succession, assignation or authority to transfer.

ARTICLE VII
MANNER OF GIVING NOTICE AND WAIVER

7.1 Notice of Stockholder Meetings. Notice of any meeting of stockholders, if mailed, is given when deposited in the United States mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on the Company's records. An affidavit of the Secretary or an Assistant Secretary of the Company or of the transfer agent or other agent of the Company that the notice has been given shall, in the absence of fraud, be prima facie evidence of the facts stated therein.

7.2 Notice by Electronic Transmission. Without limiting the manner by which notice otherwise may be given effectively to stockholders pursuant to the DGCL, the certificate of incorporation or these bylaws, any notice to stockholders given by the Company under any provision of the DGCL, the certificate of incorporation or these bylaws shall be effective if given by a form of electronic transmission consented to by the stockholder to whom the notice is given. Any such consent shall be revocable by the stockholder by written notice to the Company. Any such consent shall be deemed revoked if:

(i) the Company is unable to deliver by electronic transmission two consecutive notices given by the Company in accordance with such consent; and

(ii) such inability becomes known to the Secretary or an Assistant Secretary of the Company or to the transfer agent, or other person responsible for the giving of notice.

However, the inadvertent failure to treat such inability as a revocation shall not invalidate any meeting or other action.

Any notice given pursuant to the preceding paragraph shall be deemed given:

(iii) if by facsimile telecommunication, when directed to a number at which the stockholder has consented to receive notice;

(iv) if by electronic mail, when directed to an electronic mail address at which the stockholder has consented to receive notice;

(v) if by a posting on an electronic network together with separate notice to the stockholder of such specific posting, upon the later of (A) such posting and (B) the giving of such separate notice; and

(vi) if by any other form of electronic transmission, when directed to the stockholder.

An affidavit of the Secretary or an Assistant Secretary or of the transfer agent or other agent of the Company that the notice has been given by a form of electronic transmission shall, in the absence of fraud, be prima facie evidence of the facts stated therein.

An "electronic transmission" means any form of communication, not directly involving the physical transmission of paper, that creates a record that may be retained, retrieved, and reviewed by a recipient thereof, and that may be directly reproduced in paper form by such a recipient through an automated process.

Notice by a form of electronic transmission shall not apply to Sections 164, 296, 311, 312 or 324 of the DGCL.

7.3 Notice to Stockholders Sharing an Address. Except as otherwise prohibited under the DGCL, without limiting the manner by which notice otherwise may be given effectively to stockholders, any notice to stockholders given by the Company under the provisions of the DGCL, the certificate of incorporation of these bylaws shall be effective if given by a single written notice to stockholders who share an address if consented to by the stockholders at that address to whom such notice is given. Any such consent shall be revocable by the stockholder by written notice to the Company. Any stockholder who fails to object in writing to the Company, within 60 days of having been given written notice by the Company of its intention to send the single notice, shall be deemed to have consented to receiving such single written notice.

7.4 Notice to Person with Whom Communication is Unlawful. Whenever notice is required to be given, under the DGCL, the certificate of incorporation or these bylaws, to any person with whom communication is unlawful, the giving of such notice to such person shall not be required and there shall be no duty to apply to any governmental authority or agency for a license or permit to give such notice to such person. Any action or meeting which shall be taken or held without notice to any such person with whom communication is unlawful shall have the same force and effect as if such notice had been duly given. In the event that the action taken by the Company is such as to require the filing of a certificate under the DGCL, the certificate shall state, if such is the fact and if notice is required, that notice was given to all persons entitled to receive notice except such persons with whom communication is unlawful.

7.5 Waiver of Notice. Whenever notice is required to be given under any provision of the DGCL, the certificate of incorporation or 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 or after the time of the event for which notice is to be given, 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. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the stockholders need be specified in any written waiver of notice or any waiver by electronic transmission unless so required by the certificate of incorporation or these bylaws.

ARTICLE VIII
GENERAL MATTERS

8.1 Fiscal Year. The fiscal year of the Company shall be fixed by resolution of the Board and may be changed by the Board.

8.2 Seal. The Company may adopt a corporate seal, which shall be in such form as may be approved from time to time by the Board. The Company may use the corporate seal by causing it or a facsimile thereof to be impressed or affixed or in any other manner reproduced.

8.3 Annual Report. The Company shall cause an annual report to be sent to the stockholders of the Company to the extent required by applicable law. If and so long as there are fewer than 100 holders of record of the Company's shares, the requirement of sending an annual report to the stockholders of the Company is expressly waived (to the extent permitted under applicable law).

8.4 Construction; Definitions. Unless the context requires otherwise, the general provisions, rules of construction, and definitions in the DGCL shall govern the construction of these bylaws. Without limiting the generality of this provision, the singular number includes the plural, the plural number includes the singular, and the term "person" includes both a corporation and a natural person.

ARTICLE IX
AMENDMENTS

These bylaws may be adopted, amended or repealed by the stockholders entitled to vote. However, the Company may, in its certificate of incorporation, confer the power to adopt, amend or repeal bylaws upon the directors. The fact that such power has been so conferred upon the directors shall not divest the stockholders of the power, nor limit their power to adopt, amend or repeal bylaws.

A bylaw amendment adopted by stockholders that specifies the votes that shall be necessary for the election of directors shall not be further amended or repealed by the Board.

ARTICLE X

RIGHT OF FIRST REFUSAL

10.1 **Definitions**.

"*Common Stock*" means shares of Common Stock of the Corporation.

"*Convertible Securities*" means all then outstanding options, warrants, rights, convertible notes, preferred stock or other securities of the Corporation directly or indirectly convertible into or exercisable for shares of Common Stock.

"***Eligible Preferred Holder***" means a holder of Preferred Stock of the Corporation or any person who acquired shares form any such persons or their transferees or assignees in accordance with the provisions of these Bylaws who or which, at the time in question, holds shares of Preferred Stock and/or Common Stock issued upon conversion thereof (as may be adjusted from time to time for stock splits, stock dividends, combinations, subdivisions, recapitalizations, and the like).

"*Eligible Stockholder*" means a holder of capital stock of the Corporation or any person who acquired shares from any such persons or their transferees or assignees in accordance with the provisions of these Bylaws who or which, at the time in question, holds shares of capital stock (as may be adjusted from time to time for stock splits, stock dividends, combinations, subdivisions, recapitalizations and the like).

"*Preferred Stock*" means shares of Preferred Stock of the Corporation.

"*Right of First Refusal*" means the rights of first refusal provided to the Corporation and the Eligible Preferred Holders and Eligible Stockholders set forth in this Article X.

"Seller Preferred Shares" means all shares of Preferred Stock of the Corporation owned as of the date hereof or hereafter acquired by a stockholder of the Corporation, as adjusted for any stock splits, stock dividends, combinations, subdivisions, recapitalizations and the like.

"Seller Common Shares" means all shares of Common Stock and Convertible Securities of the Corporation owned as of the date hereof or hereafter acquired by a stockholder of the Corporation, as adjusted for any stock splits, stock dividends, combinations, subdivisions, recapitalizations and the like.

"Seller Shares" means Seller Preferred Shares and Seller Common Shares.

"Selling Stockholder" means any stockholder of the Corporation proposing to Transfer Seller Shares.

"Transfer," "Transferring," "Transferred," or words of similar import, mean and include any sale, assignment, encumbrance, hypothecation, pledge, conveyance in trust, gift, transfer by bequest, devise or descent, option to purchase or other transfer or disposition of any kind, including but not limited to transfers to receivers, levying creditors, trustees or receivers in bankruptcy proceedings or general assignees for the benefit of creditors, whether voluntary or by operation of law, directly or indirectly, *except:*

(i) any *bona fide* pledge made pursuant to a *bona fide* loan transaction that creates a mere security interest;

(ii) any transfers of Seller Shares by a Selling Stockholder to Selling Stockholder's spouse, ex-spouse, domestic partner, lineal descendant or antecedent, brother or sister, the adopted child or adopted grandchild, or the spouse or domestic partner of any child, adopted child, grandchild or adopted grandchild of Selling Stockholder, or to a trust or trusts for the exclusive benefit of Selling Stockholder or those members of Selling Stockholder's family specified in this subsection or transfers of Seller Shares by Selling Stockholder by devise or descent;

(iii) any *bona fide* gift effected for tax planning purposes;

(iv) by operation of law;

(v) (i) any transfer not involving a change in beneficial ownership or (ii) any transfers involving the distribution without consideration to (x) a constituent partner or a retired partner, or the estate of any such partner, of a Selling Stockholder that is a partnership; (y) a parent, subsidiary or other affiliate of a Selling Stockholder that is a corporation; or (z) a member or a retired member, or the estate of any such member, of a Selling Stockholder that is a limited liability company;

(vi) any transfer to the Corporation or an Eligible Preferred Holder or Eligible Stockholder pursuant to these Bylaws;

(vii) any repurchase of Seller Shares by the Corporation pursuant to agreements under which the Corporation has the option to repurchase such Seller Shares upon the occurrence of certain events, such as termination of employment, or in connection with the exercise by the Corporation of any rights of first refusal; and

(viii) shares sold and to be sold by Eligible Stockholders pursuant to the Right of Co-Sale set forth in the Co-Sale Agreement.

10.2 **General**. Before a Selling Stockholder may Transfer any Seller Shares, Selling Stockholder must comply with the provisions contained in these Bylaws.

10.3 **Notice of Proposed Transfer**. Prior to Selling Stockholder Transferring any of its Seller Shares, Selling Stockholder shall deliver to the Corporation and the Eligible Preferred Holders if such Seller Shares are Seller Preferred Shares or the Eligible Stockholders if such Seller Shares are Seller Common Shares, a written notice (the *"Transfer Notice")* stating: (i) Selling Stockholder's *bona fide* intention to Transfer such Seller Shares; (ii) the name, address and phone number of each proposed purchaser or other transferee (each, a *"Proposed Transferee");* (iii) the aggregate number of Seller Shares proposed to be Transferred to each Proposed Transferee (the *"Offered Shares");* (iv) the *bona fide* cash price or, in reasonable detail, other consideration for which Selling Stockholder proposes to Transfer the Offered Shares (the *"Offered Price")* and (v) each Eligible Preferred Holder's or Eligible Stockholder's, as applicable, right to exercise its Right of First Refusal with respect to the Offered Shares.

10.4 **Exercise by the Corporation**.

(a) For a period of twenty (20) days (the ***"Initial Exercise Period")*** after the last date on which the Transfer Notice is deemed to have been delivered to the Corporation and the Eligible Preferred Holders or Eligible Stockholders, as applicable, the Corporation shall have the right to purchase all of the Offered Shares on the terms and conditions set forth in this Section 10.4. In order to exercise its right hereunder, the Corporation must deliver written notice to Selling Stockholder within the Initial Exercise Period. In the event that the Corporation's Board of Directors determines, in its sole discretion, that the Corporation is prohibited by law or by contract from exercising the Corporation's Right of First Refusal, the Corporation may specify another person or entity who shall not be a current stockholder of the Corporation and who shall be unanimously approved by the Board of Directors, excluding any board member who is also a Selling Stockholder, as its designee to purchase such Offered Shares.

(b) Upon the earlier to occur of (i) the expiration of the Initial Exercise Period or (ii) the time when Selling Stockholder has received written confirmation from the Corporation regarding its exercise of its Right of First Refusal, the Corporation shall be deemed to have made its election with respect to the Offered Shares.

10.5 **Exercise by the Eligible Preferred Holders**.

(a) Subject to the limitations of this Section 10.5, during the Initial Exercise Period, the Eligible Preferred Holders shall have the right to purchase, in the aggregate, all or any part of the Offered Shares that are Seller Preferred Shares not purchased by the Corporation pursuant to Section 10.4 (the **"Remaining Preferred Shares")** on the terms and conditions set forth in this Section 10.5. In order to exercise its rights hereunder, such Eligible Preferred Holder must provide written notice delivered to Selling Stockholder within the Initial Exercise Period.

(b) To the extent the aggregate number of shares that the Eligible Preferred Holders desire to purchase (as evidenced in the written notices delivered to Selling Stockholder) exceeds the Remaining Shares, each Eligible Preferred Holder so exercising will be entitled to purchase its pro rata share of the Remaining Preferred Shares, which shall be equal to that number of the Remaining Preferred Shares equal to the product obtained by multiplying (x) the number of Remaining Shares by (y) a fraction, (i) the numerator of which shall be the number of shares of Common Stock (assuming conversion of all Preferred Stock and other Convertible Securities into Common Stock) held by such Eligible Preferred Holder on the date of the Transfer Notice and (ii) the denominator of which shall be the number of shares of Common Stock (assuming conversion of all Preferred Stock and other Convertible Securities into Common Stock) held on the date of the Transfer Notice by all Eligible Preferred Holders exercising their Rights of First Refusal ***("Pro Rata ROFR Preferred Share").***

(c) Within five (5) days after the expiration of the Initial Exercise Period, Selling Stockholder will give written notice to the Corporation and each Eligible Preferred Holder specifying the number of Offered Shares to be purchased by the Corporation and each Eligible Preferred Holder exercising its Right of First Refusal (the ***"ROFR Preferred Confirmation Notice").***

10.6 **Exercise by the Eligible Stockholders**.

(a) Subject to the limitations of this Section 10.6, during the Initial Exercise Period, the Eligible Stockholders shall have the right to purchase, in the aggregate, all or any part of the Offered Shares that are Seller Common Shares not purchased by the Corporation pursuant to Section 10.4 (the ***"Remaining Shares")*** on the terms and conditions set forth in this Section 10.6. In order to exercise its rights hereunder, such Eligible Stockholder must provide written notice delivered to Selling Stockholder within the Initial Exercise Period.

(b) To the extent the aggregate number of shares that the Eligible Stockholders desire to purchase (as evidenced in the written notices delivered to Selling Stockholder) exceeds the Remaining Shares, each Eligible Stockholder so exercising will be entitled to purchase its pro rata share of the Remaining Shares, which shall be equal to that number of the Remaining Shares equal to the product obtained by multiplying (x) the number of Remaining Shares by (y) a fraction, (i) the numerator of which shall be the number of shares of Common Stock (assuming conversion of all Preferred Stock and other Convertible Securities into Common Stock) held by such Eligible Stockholder on the date of the Transfer Notice and (ii) the denominator of which shall be the number of shares of Common Stock (assuming conversion of all Preferred Stock and other Convertible Securities into Common Stock) held on the date of the Transfer Notice by all Eligible Stockholders exercising their Rights of First Refusal ***("Pro Rata ROFR Share").***

(c) Within five (5) days after the expiration of the Initial Exercise Period, Selling Stockholder will give written notice to the Corporation and each Eligible Stockholder specifying the number of Offered Shares to be purchased by the Corporation and each Eligible Stockholder exercising its Right of First Refusal (the ***"ROFR Confirmation Notice").***

10.7 **Purchase Price**. The purchase price for the Offered Shares to be purchased by the Corporation or by an Eligible Preferred Holder or Eligible Stockholder exercising its Right of First Refusal under these Bylaws will be the Offered Price, and will be payable as set forth in Section 10.8. If the Offered Price includes consideration other than cash, the cash equivalent value of the non-cash consideration will be determined by the Board of Directors of the Corporation in good faith, which determination will be binding upon the Corporation, each Eligible Preferred Holder, Eligible Stockholder and Selling Stockholder, absent fraud or error.

10.8 **Closing; Payment**. Subject to compliance with applicable state and federal securities laws, the Corporation and the Eligible Preferred Holders or Eligible Stockholders exercising their Rights of First Refusal shall effect the purchase of all or any portion of the Offered Shares, including the payment of the purchase price, within ten (10) days after the later of the delivery of the ROFR Confirmation Notice or the ROFR Preferred Confirmation Notice (the "***Right of First Refusal Closing***"*).* Payment of the purchase price will be made, at the option of the party exercising its Right of First Refusal, (i) in cash (by check), (ii) by wire transfer or (iii) by cancellation of all or a portion of any outstanding indebtedness of Selling Stockholder to the Corporation or the Eligible Preferred Holder or the Eligible Stockholder as the case may be, or (iv) by any combination of the foregoing. At such Right of First Refusal Closing, Selling Stockholder shall deliver to each of the Corporation and the Eligible Preferred Holders or Eligible Stockholders exercising their Rights of First Refusal, one or more certificates, properly endorsed for transfer, representing such Offered Shares so purchased.

10.9 **Waiver**. The provisions of this Article X may be waived with respect to any transfer either by the Corporation, upon duly authorized action of its Board of Directors, or by the stockholders, upon the express written consent of the owners of a majority of the voting power of the Corporation (excluding the votes represented by those shares to be sold by the selling stockholder). This Article X may be amended or repealed either by a duly authorized action of the Board of Directors or by the stockholders, upon the express written consent of the owners of a majority of the voting power of the Corporation.

10.10 **Void Transfers**. Any sale or transfer, or purported sale or transfer, of securities of the Corporation by stockholders shall be null and void unless the terms, conditions, and provisions of this bylaw are strictly observed and followed.

10.11 **Termination**. The foregoing right of first refusal shall terminate upon the earlier to occur of: (i) a Qualified IPO (as defined in the Corporation's Certificate of Incorporation, as may be amended from time to time) or (ii) a Liquidation Event (as defined in the Corporation's Certificate of Incorporation, as may be amended from time to time).

10.12 **Legend**. The certificates representing shares of Common Stock and Preferred Stock of the Corporation shall bear on their face the following legend so long as the foregoing right of first refusal remains in effect:

“THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO A RIGHT OF FIRST REFUSAL OPTION, AS PROVIDED IN THE BYLAWS OF THE CORPORATION.”

ALLAKOS INC.

AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

November 30, 2017

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ALLAKOS INC.
AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

This Amended and Restated Investors' Rights Agreement (this "**Agreement**") made as of November 30, 2017, by and among Allakos Inc., a Delaware corporation (the "**Company**"), and the persons and entities listed on Exhibit A (each, an "**Investor**" and collectively, the "**Investors**").

RECITALS

WHEREAS, the Company and certain of the Investors (the "**Existing Investors**") are party to that certain Investors' Rights Agreement, dated as of December 7, 2012 (the "**Prior Agreement**").

WHEREAS, the undersigned Existing Investors are holders of a majority of the Registrable Securities of the Company (as defined in the Prior Agreement), and desire to amend and restate the Prior Agreement in its entirety and to accept the rights created pursuant to this Agreement in lieu of the rights granted to them under the Prior Agreement.

WHEREAS, certain of the Investors are parties to the Series B Preferred Stock Purchase Agreement of even date herewith, by and among the Company and the Investors listed on the Schedule of Investors thereto (the "**Stock Purchase Agreement**"), and it is a condition to the Closing, as defined in the Stock Purchase Agreement, of the sale of the Series B Preferred Stock to the Investors listed on the Schedule of Investors thereto that the undersigned Investors and the Company execute and deliver this Agreement.

NOW, THEREFORE, in consideration of the mutual promises and covenants set forth herein, and other consideration, the receipt and adequacy of which is hereby acknowledged, the undersigned Existing Investors hereby agree that the Prior Agreement shall be amended and restated in its entirety by this Agreement, and the parties hereto further agree as follows:

SECTION 1

DEFINITIONS

1.1 **Certain Definitions**. As used in this Agreement, the following terms shall have the meanings set forth below:

(a) "**Affiliate**" means with respect to any person, any other person which directly or indirectly through one or more intermediaries Controls, or is Controlled by, or is under common Control with, such first person, including without limitation, any general partner, managing member, officer or director of such person or any venture capital fund now or hereafter existing that is controlled by one or more general partners or managing members of, or shares the same management company with, such person.

(b) "**Board of Directors**" means the Company's Board of Directors.

(c) "**Commission**" means the Securities and Exchange Commission or any other federal agency at the time administering the Securities Act.

(d) "**Common Stock**" means the Common Stock of the Company.

(e) "**Control**" means the possession, directly or indirectly, of the power to direct or cause the direction of the management or policies of a person, whether through the ownership of voting securities, by contract or otherwise, and the terms "Controlling" and "Controlled" shall have meanings correlative thereto.

(f) "**Conversion Stock**" means shares of Common Stock issued upon conversion of the Preferred Stock.

(g) "**Exchange Act**" means the Securities Exchange Act of 1934, as amended, or any similar successor federal statute and the rules and regulations thereunder, all as the same shall be in effect from time to time.

(h) "**Holder**" means any Investor who holds Registrable Securities and any holder of Registrable Securities to whom the registration rights conferred by this Agreement have been duly and validly transferred in accordance with Section 2.12 of this Agreement.

(i) "**Indemnified Party**" shall have the meaning set forth in Section 2.6(c) hereof.

(j) "**Indemnifying Party**" shall have the meaning set forth in Section 2.6(c) hereof.

(k) "**Initial Public Offering**" means the closing of the Company's first firm commitment underwritten public offering of the Company's Common Stock registered under the Securities Act.

(l) "**Initiating Holders**" means any Holder or Holders who in the aggregate hold not less than fifty percent (50%) of the outstanding Registrable Securities.

(m) "**Liquidation Event**" shall have the meaning set forth in the Company's Restated Certificate.

(n) "**New Securities**" shall have the meaning set forth in Section 4.1(a) hereof.

(o) "**Other Selling Stockholders**" means persons other than Holders who, by virtue of agreements with the Company, are entitled to include their Other Shares in certain registrations hereunder.

(p) "**Other Shares**" means shares of Common Stock, other than Registrable Securities (as defined below), with respect to which registration rights have been granted.

(q) "**Qualified IPO**" shall have the meaning set forth in the Company's Restated Certificate.

(r) "**Preferred Stock**" means the Series A Preferred Stock and Series B Preferred Stock.

(s) "**Registrable Securities**" means (i) shares of Common Stock issued or issuable pursuant to the conversion of the Preferred Stock and (ii) any Common Stock issued as a dividend or other distribution with respect to or in exchange for or in replacement of the shares referenced in (i) above; *provided*, *however*, that Registrable Securities shall not include any shares of Common Stock described in clause (i) or (ii) above which have previously been registered or which have been sold to the public either pursuant to a registration statement or Rule 144, or which have been sold in a private transaction in which the transferor's rights under this Agreement are not validly assigned in accordance with this Agreement.

(t) The terms "**register**," "**registered**" and "**registration**" shall refer to a registration effected by preparing and filing a registration statement in compliance with the Securities Act and applicable rules and regulations thereunder, and the declaration or ordering of the effectiveness of such registration statement.

(u) "**Registration Expenses**" means all expenses incurred in effecting any registration pursuant to this Agreement, including, without limitation, all registration, qualification, and filing fees, printing expenses, escrow fees, fees and disbursements not to exceed $25,000 of one special counsel to the Holders, fees and disbursements of counsel for the Company, blue sky fees and expenses, and expenses of any regular or special audits incident to or required by any such registration, but shall not include Selling Expenses, fees and disbursements of counsel for the Holders and the compensation of regular employees of the Company, which shall be paid in any event by the Company.

(v) "**Required Director Approval**" means the approval, in a duly called and held meeting, or by a unanimous written consent, or by other lawful decision or action by the Board of Directors, of at least a majority of the total number of then-serving directors.

(w) "**Restated Certificate**" means the Company's Second Amended and Restated Certificate of Incorporation, as may be amended from time to time.

(x) "**Restricted Securities**" means any Registrable Securities required to bear the first legend set forth in Section 2.8(b) hereof.

(y) "**Rule 144**" means Rule 144 as promulgated by the Commission under the Securities Act, as such Rule may be amended from time to time, or any similar successor rule that may be promulgated by the Commission.

(z) "**Rule 145**" means Rule 145 as promulgated by the Commission under the Securities Act, as such Rule may be amended from time to time, or any similar successor rule that may be promulgated by the Commission.

(aa) "**Rule 415**" means Rule 415 as promulgated by the Commission under the Securities Act, as such Rule may be amended from time to time, or any similar successor rule that may be promulgated by the Commission.

(bb) "**Securities Act**" means the Securities Act of 1933, as amended, or any similar successor federal statute and the rules and regulations thereunder, all as the same shall be in effect from time to time.

(cc) "**Selling Expenses**" means all underwriting discounts, selling commissions and stock transfer taxes applicable to the sale of Registrable Securities and fees and disbursements of counsel for any Holder (other than the fees and disbursements of one special counsel to the Holders included in Registration Expenses).

(dd) "**Series A Director**" shall have the meaning set forth in the Company's Restated Certificate.

(ee) "**Series B Director**" shall have the meaning set forth in the Company's Restated Certificate.

(ff) "**Series A Preferred Stock**" means the shares of the Company's Series A Preferred Stock.

(gg) "**Series B Preferred Stock**" means the shares of Series B Preferred Stock issued pursuant to the Stock Purchase Agreement.

(hh) "**Significant Holders**" shall have the meaning set forth in Section 3.1(a) hereof.

(ii) "**Stock Purchase Agreement**" shall have the meaning set forth in the Recitals hereof.

(jj) "**Withdrawn Registration**" means a forfeited demand registration under Section 2.1 hereof in accordance with the terms and conditions of Section 2.4 hereof.

SECTION 2

REGISTRATION RIGHTS

2.1 **Requested Registration**.

(a) ***Request for Registration***. Subject to the conditions set forth in this Section 2.1, if the Company shall receive from Initiating Holders a written request signed by such Initiating Holders that the Company effect any registration with respect to all or a part of the Registrable Securities (such request shall state the number of shares of Registrable Securities to proposed to be registered by such Initiating Holders), the Company will:

(i) promptly give written notice of the proposed registration to all other Holders; and

(ii) as soon as practicable, file and use its commercially reasonable efforts to effect such registration (including, without limitation, filing post-effective amendments, appropriate qualifications under applicable blue sky or other state securities laws, and appropriate compliance with the Securities Act) and to permit or facilitate the sale and distribution of all or such portion of such Registrable Securities as are specified in such request, together with all or such portion of the Registrable Securities of any Holder or Holders joining in such request as are specified in a written request received by the Company within twenty (20) days after such written notice from the Company is mailed or delivered.

(b) ***Limitations on Requested Registration***. The Company shall not be obligated to effect, or to take any action to effect, any such registration pursuant to this Section 2.1:

(i) Prior to the earlier of (A) the five (5) year anniversary of the date of this Agreement or (B) one hundred eighty (180) days following the effective date of the first registration statement filed by the Company covering an Initial Public Offering (or the subsequent date on which all market stand-off agreements applicable to the offering have terminated);

(ii) If the Initiating Holders, together with the holders of any other securities of the Company entitled to inclusion in such registration statement, propose to sell Registrable Securities and such other securities (if any) the aggregate proceeds of which (after deduction for underwriter's discounts and expenses related to the issuance) are less than $10,000,000;

(iii) In any particular jurisdiction in which the Company would be required to execute a general consent to service of process in effecting such registration, qualification, or compliance, unless the Company is already subject to service in such jurisdiction and except as may be required by the Securities Act;

(iv) After the Company has initiated two (2) such registrations pursuant to this Section 2.1 (counting for these purposes only (x) registrations which have been declared or ordered effective and pursuant to which securities have been sold, and (y) Withdrawn Registrations);

(v) During the period starting with the date ninety (90) days prior to the Company's good faith estimate of the date of filing of and ending on a date ninety (90) days after the effective date of, a Company-initiated registration (or ending on the subsequent date on which all market stand-off agreements applicable to the offering have terminated); *provided* that if such registration is an Initial Public Offering the period shall end a date one hundred eighty (180) days after the effective date of such Initial Public Offering; *provided* further that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective, and *provided further*, that in the case of an Initial Public Offering, the Company delivers notice to the Holders of its intent to file a registration statement covering an Initial Public Offering within thirty (30) days of any request for registration made pursuant to Section 2.1(a) hereof;

(vi) If the Initiating Holders propose to dispose of shares of Registrable Securities that may be registered on Form S-3 pursuant to a request made under Section 2.3 hereof;

(vii) If the Initiating Holders do not request that such offering be firmly underwritten by underwriters selected by the Initiating Holders (subject to the consent of the Company); or

(viii) If the Company and the Initiating Holders are unable to obtain the commitment of the underwriter described in clause (b)(vii) above to firmly underwrite the offer.

(c) ***Deferral***. If (i) in the good faith judgment of the Board of Directors, the filing of a registration statement covering the Registrable Securities would be detrimental to the Company and the Board of Directors concludes, as a result, that it is in the best interests of the Company to defer the filing of such registration statement at such time, and (ii) the Company shall furnish to such Holders a certificate signed by the Chief Executive Officer of the Company stating that in the good faith judgment of the Board of Directors, it would be detrimental to the Company for such registration statement to be filed in the near future and that it is, therefore, in the best interests of the Company to defer the filing of such registration statement, then (in addition to the limitations set forth in Section 2.1(b)(v) hereof) the Company shall have the right to defer such filing for a period of not more than one hundred and twenty (120) days after receipt of the request of the Initiating Holders, and, *provided further,* that the Company shall not defer its obligation in this manner more than two (2) times in any twelve-month period.

(d) ***Other Shares***. The registration statement filed pursuant to the request of the Initiating Holders may, subject to the provisions of Section 2.1(e) hereof, include Other Shares, and may include securities of the Company being sold for the account of the Company.

(e) ***Underwriting***. The right of any Holder to include all or any portion of its Registrable Securities in a registration pursuant to this Section 2.1 shall be conditioned upon such Holder's participation in an underwriting and the inclusion of such Holder's Registrable Securities to the extent provided herein. If the Company shall request inclusion in any registration pursuant to Section 2.1 hereof of securities being sold for its own account, or if other persons shall request inclusion in any registration pursuant to Section 2.1 hereof, the Initiating Holders shall, on behalf of all Holders, offer to include such securities in the underwriting and such offer shall be conditioned upon the participation of the Company or such other persons in such underwriting and the inclusion of the Company's and such person's other securities of the Company and their acceptance of the further applicable provisions of this Section 2 (including Section 2.10 hereof). The Company shall (together with all Holders and other persons proposing to distribute their securities through such underwriting) enter into an underwriting agreement in customary form with the representative of the underwriter or underwriters selected for such underwriting by the Company, which underwriters are reasonably acceptable to a majority-in-interest of the Initiating Holders.

Notwithstanding any other provision of this Section 2.1, if the underwriters advise the Initiating Holders in writing that marketing factors require a limitation on the number of shares to be underwritten, the number of Registrable Securities and Other Shares that may be so included shall be allocated as follows: (i) first, among all Holders requesting to include Registrable Securities in such registration statement based on the *pro rata* percentage of Registrable Securities held by such Holders, assuming conversion; (ii) second, to the Other Selling Stockholders; and (iii) third, to the Company, which the Company may allocate, at its discretion, for its own account, or for the account of other holders or employees of the Company.

If a person who has requested inclusion in such registration as provided above does not agree to the terms of any such underwriting, such person shall be excluded therefrom by written notice from the Company, the underwriter or the Initiating Holders. The securities so excluded shall also be withdrawn from registration. Any Registrable Securities or other securities excluded or withdrawn from such underwriting shall also be withdrawn from such registration. If shares are so withdrawn from the registration and if the number of shares to be included in such registration was previously reduced as a result of marketing factors pursuant to this Section 2.1(e), then the Company shall then offer to all Holders and Other Selling Stockholders who have retained rights to include securities in the registration the right to include additional Registrable Securities or Other Shares in the registration in an aggregate amount equal to the number of shares so withdrawn, with such shares to be allocated among such Holders and Other Selling Stockholders requesting additional inclusion, as set forth above.

2.2 **Company Registration**.

(a) ***Company Registration***. If the Company shall determine to register any of its securities either for its own account or the account of a security holder or holders, other than a registration pursuant to Section 2.1 or 2.3 hereof, a registration relating solely to employee benefit plans, a registration relating to the offer and sale of debt securities, a registration relating to a corporate reorganization or other Rule 145 transaction, or a registration on any registration form that does not permit secondary sales, the Company will:

(i) promptly give written notice of the proposed registration to all Holders; and

(ii) use its commercially reasonable efforts to include in such registration (and any related qualification under blue sky laws or other compliance), except as set forth in Section 2.2(b) hereof, and in any underwriting involved therein, all of such Registrable Securities as are specified in a written request or requests made by any Holder or Holders received by the Company within ten (10) days after such written notice from the Company is mailed or delivered. Such written request may specify all or a part of a Holder's Registrable Securities.

(b) ***Underwriting***. If the registration of which the Company gives notice is for a registered public offering involving an underwriting, the Company shall so advise the Holders as a part of the written notice given pursuant to Section 2.2(a)(i) hereof. In such event, the right of any Holder to registration pursuant to this Section 2.2 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. All Holders proposing to distribute their securities through such underwriting shall (together with the Company, the Other Selling Stockholders and other holders of securities of the Company with registration rights to participate therein distributing their securities through such underwriting) enter into an underwriting agreement in customary form with the representative of the underwriter or underwriters selected by the Company.

Notwithstanding any other provision of this Section 2.2, if the underwriters advise the Company in writing that marketing factors require a limitation on the number of shares to be underwritten, the underwriters may (subject to the limitations set forth below) exclude all Registrable Securities from, or limit the number of Registrable Securities to be included in, the registration and underwriting. The Company shall so advise all holders of securities requesting registration, and the number of shares of securities that are entitled to be included in the registration and underwriting shall be allocated, as follows: (i) first, to the Company for securities being sold for its own account, (ii) second, to the Holders requesting to include Registrable Securities in such registration statement based on the *pro rata* percentage of Registrable Securities held by such Holders, assuming conversion, and (iii) third, to the Other Selling Stockholders requesting to include Other Shares in such registration statement based on *pro rata* percentage of Other Shares held by such Other Selling Stockholders, assuming conversion. Notwithstanding the foregoing, no such reduction shall reduce the value of the Registrable Securities of the Holders included in such registration below twenty five percent (25%) of the total value of securities included in such registration, unless such offering is the Company's Initial Public Offering and such registration does not include shares of any Other Selling Stockholders (excluding shares registered for the account of the Company), in which event any or all of the Registrable Securities of the Holders may be excluded.

If a person who has requested inclusion in such registration as provided above does not agree to the terms of any such underwriting, such person shall also be excluded therefrom by written notice from the Company or the underwriter. The Registrable Securities or other securities so excluded shall also be withdrawn from such registration. Any Registrable Securities or other securities excluded or withdrawn from such underwriting shall be withdrawn from such registration.

(c) ***Right to Terminate Registration***. The Company shall have the right to terminate or withdraw any registration initiated by it under this Section 2.2 prior to the effectiveness of such registration whether or not any Holder has elected to include securities in such registration.

2.3 **Registration on Form S-3**.

(a) ***Request for Form S-3 Registration***. After its initial public offering, the Company shall use its commercially reasonable efforts to qualify for registration on Form S-3 or any comparable or successor form or forms. After the Company has qualified for the use of Form S-3, in addition to the rights contained in the foregoing provisions of Section 2 hereof and subject to the conditions set forth in this Section 2.3, if the Company shall receive from a Holder or Holders of Registrable Securities a written request that the Company effect any registration on Form S-3 or any similar short form registration statement with respect to all or part of the Registrable Securities (such request shall state the number of shares of Registrable Securities to be disposed of and the intended methods of disposition of such shares by such Holder or Holders), the Company will take all such action with respect to such Registrable Securities as required by Sections 2.1(a)(i) and (ii) hereof.

(b) ***Limitations on Form S-3 Registration***. The Company shall not be obligated to effect, or take any action to effect, any such registration pursuant to this Section 2.3:

(i) In the circumstances described in either Sections 2.1(b)(i) hereof, 2.1(b)(iii) hereof, or 2.1(b)(v) hereof;

(ii) If the Holders, together with the holders of any other securities of the Company entitled to inclusion in such registration, propose to sell Registrable Securities and such other securities (if any) on Form S-3 at an aggregate price to the public of less than $1,000,000; or

(iii) If, in a given twelve-month period, the Company has effected two (2) such registrations in such period.

(c) ***Deferral***. The provisions of Section 2.1(c) hereof shall apply to any registration pursuant to this Section 2.3

(d) ***Underwriting***. If the Holders of Registrable Securities requesting registration under this Section 2.3 hereof intend to distribute the Registrable Securities covered by their request by means of an underwriting, the provisions of Section 2.1(e) hereof shall apply to such registration. Notwithstanding anything contained herein to the contrary, registrations effected pursuant to this Section 2.3 shall not be counted as requests for registration or registrations effected pursuant to Section 2.1 hereof.

2.4 **Expenses of Registration**. All Registration Expenses incurred in connection with registrations pursuant to Sections 2.1, 2.2 and 2.3 hereof shall be borne by the Company; *provided*, *however*, that the Company shall not be required to pay for any expenses of any registration proceeding begun pursuant to Sections 2.1 and 2.3 hereof if the registration request is subsequently withdrawn at the request of the Holders of a majority of the Registrable Securities to be registered or because a sufficient number of Holders shall have withdrawn so that the minimum offering conditions set forth in Sections 2.1 and 2.3 hereof are no longer satisfied (in which case all participating Holders shall bear such expenses *pro rata* among each other based on the number of Registrable Securities requested to be so registered), unless the Holders of a majority of the Registrable Securities agree to forfeit their right to a demand registration pursuant to Section 2.1 hereof; *provided*, *however*, in the event that a withdrawal by the Holders is based upon material adverse information relating to the Company that is different from the information known or available (upon request from the Company or otherwise) to the Holders requesting registration at the time of their request for registration under Section 2.1 hereof, such registration shall not be treated as a counted registration for purposes of Section 2.1 hereof, even though the Holders do not bear the Registration Expenses for such registration. All Selling Expenses relating to securities registered on behalf of the Holders shall be borne by the holders of securities included in such registration *pro rata* among each other on the basis of the number of Registrable Securities so registered.

2.5 **Registration Procedures**. In the case of each registration effected by the Company pursuant to Section 2 hereof, the Company will keep each Holder advised in writing as to the initiation of each registration and as to the completion thereof. At its expense, the Company will use its commercially reasonable efforts to:

(a) Keep such registration effective for a period of up to one hundred twenty (120) days or, if earlier, until the distribution contemplated in the registration statement has been completed; provided, however, that (i) such one hundred twenty (120) day period shall be extended for a period of time equal to the period the Holder refrains, at the request of an underwriter of Common Stock (or other securities) of the Company, from selling any securities included in such registration, and (ii) in the case of any 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 one hundred twenty (120) day period shall be extended for up to one hundred eighty (180) days, if necessary, to keep the registration statement effective until all such Registrable Securities are sold;

(b) Prepare and file with the Commission such 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 for the period set forth in Section 2.5(a) hereof;

(c) Furnish such number of prospectuses, including any preliminary prospectuses, and other documents incident thereto, including any amendment of or supplement to the prospectus, as a Holder from time to time may reasonably request;

(d) Register and qualify the securities covered by such registration statement under such other securities or Blue Sky laws of such jurisdiction as shall be reasonably requested by the Holders; *provided*, that the Company shall not be required in connection therewith or as a condition thereto to qualify to do business or to file a general consent to service of process in any such states or jurisdictions;

(e) Notify each seller 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 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 or incomplete in light of the circumstances then existing, and following such notification promptly prepare and furnish to such seller a reasonable number of copies of a supplement to or an amendment of such prospectus as may be necessary so that, as thereafter delivered to the purchasers of such shares, such prospectus shall not include an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading or incomplete in light of the circumstances then existing;

(f) Provide a transfer agent and registrar for all Registrable Securities registered pursuant to such registration statement and a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration;

(g) Cause all such Registrable Securities registered pursuant hereunder to be listed on each securities exchange on which similar securities issued by the Company are then listed; and

(h) In connection with any underwritten offering pursuant to a registration statement filed pursuant to Section 2.1 hereof, enter into an underwriting agreement in form reasonably necessary to effect the offer and sale of Common Stock, *provided* such underwriting agreement contains reasonable and customary provisions, and *provided further*, that each Holder participating in such underwriting shall also enter into and perform its obligations under such an agreement.

2.6 **Indemnification**.

(a) To the extent permitted by law, the Company will indemnify and hold harmless each Holder, each of its officers, Directors and partners, legal counsel and accountants and each person controlling such Holder within the meaning of Section 15 of the Securities Act, with respect to which registration, qualification or compliance has been effected pursuant to Section 2 hereof, and each underwriter, if any, and each person who controls within the meaning of Section 15 of the Securities Act any underwriter, against all expenses, claims, losses, damages and liabilities (or actions, proceedings or settlements in respect thereof) arising out of or based on: (i) any untrue statement (or alleged untrue statement) of a material fact contained or incorporated by reference in any registration statement, any prospectus included in the registration statement, any issuer free writing prospectus (as defined in Rule 433 of the Securities Act), any issuer information (as defined in Rule 433 of the Securities Act) filed or required to be filed pursuant to Rule 433(d) under the Securities Act or any other document incident to any such registration, qualification or compliance prepared by or on behalf of the Company or used or referred to by the Company, (ii) any 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, any state securities laws or any rule or regulation thereunder applicable to the Company and relating to action or inaction required of the Company in connection with any offering covered by such registration, qualification or compliance, and the Company will reimburse each such Holder, each of its officers, Directors, partners, legal counsel and accountants and each person controlling such Holder, each such underwriter and each person who controls any such underwriter, for any legal and any other expenses reasonably incurred in connection with investigating and defending or settling any such claim, loss, damage, liability or action; *provided* that the Company will not be liable in any such case to the extent that any such claim, loss, damage, liability, or action arises out of or is based on any untrue statement or omission based upon written information furnished to the Company by such Holder, any of such Holder's officers, Directors, partners, legal counsel or accountants, any person controlling such Holder, such underwriter or any person who controls any such underwriter, and stated to be specifically for use therein; and *provided*, *further* that, the indemnity agreement contained in this Section 2.6(a)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 Company (which consent shall not be unreasonably withheld).

(b) To the extent permitted by law, each Holder will, if Registrable Securities held by such Holder are included in the securities as to which such registration, qualification or compliance is being effected, indemnify and hold harmless the Company, each of its Directors, officers, partners, legal counsel and accountants and each underwriter, if any, of the Company's securities covered by such a registration statement, each person who controls the Company or such underwriter within the meaning of Section 15 of the Securities Act, each other such Holder, and each of their officers, Directors and partners, and each person controlling each other such Holder, against all claims, losses, damages and liabilities (or actions in respect thereof) arising out of or based on: (i) any untrue statement (or alleged untrue statement) of a material fact contained or incorporated by reference in any prospectus, offering circular or other document (including any related registration statement, notification, or the like) incident to any such registration, qualification or compliance, or (ii) any omission (or alleged omission) to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, and will reimburse the Company and such Holders, Directors, officers, partners, legal counsel and accountants, persons, underwriters, or control persons for any legal or any other expenses reasonably incurred in connection with investigating or defending any such claim, loss, damage, liability or action, in each case to the extent, but only to the extent, that such untrue statement (or alleged untrue statement) or omission (or alleged omission) is made in such registration statement, prospectus, offering circular or other document in reliance upon and in conformity with written information furnished to the Company by such Holder and stated to be specifically for use therein; *provided*, *however*, that the obligations of such Holder hereunder shall not apply to amounts paid in settlement of any such claims, losses, damages or liabilities (or actions in respect thereof) if such settlement is effected without the consent of such Holder (which consent shall not be unreasonably withheld); and provided that in no event shall any indemnity under this Section 2.6 exceed the net proceeds from the offering received by such Holder, except in the case of fraud or willful misconduct by such Holder.

(c) Each party entitled to indemnification under this Section 2.6 (the "**Indemnified Party**") shall give notice to the party required to provide indemnification (the "**Indemnifying Party**") promptly after such Indemnified Party has actual knowledge of any claim as to which indemnity may be sought, and shall permit the Indemnifying Party to assume the defense of such claim or any litigation resulting therefrom; *provided* that counsel for the Indemnifying Party, who shall conduct the defense of such claim or any litigation resulting therefrom, shall be approved by the Indemnified Party (whose approval shall not be unreasonably withheld), and the Indemnified Party may participate in such defense at such party's expense; and *provided further* that the failure of any Indemnified Party to give notice as provided herein shall not relieve the Indemnifying Party of its obligations under this Section 2.6, to the extent such failure is not prejudicial. No Indemnifying Party, in the defense of any such claim or litigation, shall, except with the consent of each Indemnified Party, consent to entry of any judgment or enter into any settlement that does not include as an unconditional term thereof the giving by the claimant or plaintiff to such Indemnified Party of a release from all liability in respect to such claim or litigation. Each Indemnified Party shall furnish such information regarding itself or the claim in question as an Indemnifying Party may reasonably request in writing and as shall be reasonably required in connection with defense of such claim and litigation resulting therefrom.

(d) If the indemnification provided for in this Section 2.6 is held by a court of competent jurisdiction to be unavailable to an Indemnified Party with respect to any loss, liability, claim, damage, or expense referred to herein, then the Indemnifying Party, in lieu of indemnifying such Indemnified Party hereunder, shall contribute to the amount paid or payable by such Indemnified Party as a result of such loss, liability, claim, damage, or expense in such proportion as is appropriate to reflect the relative fault of the Indemnifying Party on the one hand and of the Indemnified Party on the other in connection with the statements or omissions that resulted in such loss, liability, claim, damage, or expense as well as any other relevant equitable considerations. The relative fault of the Indemnifying Party and of the Indemnified Party shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission to state a material fact relates to information supplied by the Indemnifying Party or by the Indemnified Party and the parties' relative intent, knowledge, access to information, and opportunity to correct or prevent such statement or omission. No person or entity will be required under this Section 2.6(d) to contribute any amount in excess of the net proceeds from the offering received by such person or entity, except in the case of fraud or willful misconduct by such person or entity. No person or entity guilty of fraudulent misrepresentation (within the meaning of Section 11 (f) of the Securities Act) will be entitled to contribution from any person or entity who was not guilty of such fraudulent misrepresentation.

(e) Notwithstanding the foregoing, to the extent that the provisions on indemnification and contribution contained in the underwriting agreement entered into in connection with the underwritten public offering are in conflict with the foregoing provisions, the provisions in the underwriting agreement shall control.

2.7 **Information by Holder**. Each Holder of Registrable Securities shall furnish to the Company such information regarding such Holder and the distribution proposed by such Holder as the Company may reasonably request in writing and as shall be reasonably required in connection with any registration, qualification, or compliance referred to in Section 2 hereof.

2.8 **Restrictions on Transfer**.

(a) The holder of each certificate representing Registrable Securities by acceptance thereof shall comply in all respects with the provisions of this Section 2.8. Each Holder agrees not to make any sale, assignment, transfer, pledge or other disposition of all or any portion of the Restricted Securities, or any beneficial interest therein, unless and until the transferee thereof has agreed in writing for the benefit of the Company to take and hold such Restricted Securities subject to, and to be bound by, the terms and conditions set forth in this Agreement, including, without limitation, this Section 2.8 and Section 2.10 hereof, and:

(i) There is then in effect a registration statement under the Securities Act covering such proposed disposition and the disposition is made in accordance with the registration statement; or

(ii) The Holder shall have given prior written notice to the Company of the Holder's intention to make such disposition and shall have furnished the Company with a detailed description of the manner and circumstances of the proposed disposition, and the Holder shall have furnished the Company, at the Holder's expense, with (i) an opinion of counsel (which, for the avoidance of doubt, may include such Holder's in-house legal counsel), reasonably satisfactory to the Company, to the effect that such disposition will not require registration of such Restricted Securities under the Securities Act or (ii) a "no action" letter from the Commission to the effect that the transfer of such securities without registration will not result in a recommendation by the staff of the Commission that action be taken with respect thereto, whereupon the holder of such Restricted Securities shall be entitled to transfer such Restricted Securities in accordance with the terms of the notice delivered by the Holder to the Company.

(b) Each certificate representing Registrable Securities shall (unless otherwise permitted by the provisions of this Agreement) be stamped or otherwise imprinted with a legend substantially similar to the following (in addition to any legend required under applicable state securities laws):

> THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR UNDER THE SECURITIES LAWS OF CERTAIN STATES. THESE SECURITIES MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED EXCEPT AS PERMITTED UNDER THE ACT AND APPLICABLE STATE SECURITIES LAWS PURSUANT TO REGISTRATION OR AN EXEMPTION THEREFROM. THE ISSUER OF THESE SECURITIES MAY REQUIRE AN OPINION OF COUNSEL REASONABLY SATISFACTORY TO THE ISSUER THAT SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION OTHERWISE COMPLIES WITH THE ACT AND ANY APPLICABLE STATE SECURITIES LAWS.
>
> THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO RESTRICTIONS ON TRANSFERABILITY AND RESALE, INCLUDING A LOCK-UP PERIOD IN THE EVENT OF A PUBLIC OFFERING, AS SET FORTH IN AN INVESTORS' RIGHTS AGREEMENT AMONG THE COMPANY AND THE ORIGINAL HOLDERS OF THESE SHARES, COPIES OF WHICH MAY BE OBTAINED AT THE PRINCIPAL OFFICE OF THE COMPANY.

The Holders consent to the Company making a notation on its records and giving instructions to any transfer agent of the Restricted Securities in order to implement the restrictions on transfer established in this Section 2.8.

(c) The first legend referring to federal and state securities laws identified in Section 2.8(b) hereof stamped on a certificate evidencing the Restricted Securities and the stock transfer instructions and record notations with respect to the Restricted Securities shall be removed and the Company shall issue a certificate without such legend to the holder of Restricted Securities if (i) those securities are registered under the Securities Act, or (ii) the holder provides the Company with an opinion of counsel reasonably acceptable to the Company to the effect that a sale or transfer of those securities may be made without registration or qualification.

2.9 **Rule 144 Reporting**. With a view to making available the benefits of certain rules and regulations of the Commission that may permit the sale of the Restricted Securities to the public without registration, the Company shall use its commercially reasonable efforts to:

(a) Make and keep adequate current public information with respect to the Company available in accordance with Rule 144 under the Securities Act, at all times from and after ninety (90) days following the effective date of the first registration under the Securities Act filed by the Company for an offering of its securities to the general public;

(b) File with the Commission in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act at any time after it has become subject to such reporting requirements; and

(c) So long as a Holder owns any Restricted Securities, furnish to the Holder forthwith upon written request a written statement by the Company as to its compliance with the reporting requirements of Rule 144 (at any time from and after ninety (90) days following the effective date of the first registration statement filed by the Company for an offering of its securities to the general public), and of the Securities Act and the Exchange Act (at any time after it has become subject to such reporting requirements), a copy of the most recent annual or quarterly report of the Company, and such other reports and documents so filed as a Holder may reasonably request in availing itself of any rule or regulation of the Commission allowing a Holder to sell any such securities without registration.

2.10 **Market Stand-Off Agreement**. Each Holder shall not sell or otherwise transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale, of any Common Stock (or other securities) of the Company held by such Holder (other than those included in the registration) during the one hundred and eighty (180) day period following the effective date of a registration statement of the Company filed under the Securities Act for its Initial Public Offering (or such other period as may be requested by the Company or an underwriter to accommodate regulatory restrictions on (i) the publication or other distribution of research reports and (ii) analyst recommendations and opinions, including, but not limited to, the restrictions contained in NASD Rule 2711(f)(4) or NYSE Rule 472(f)(4), or any successor provisions or amendments thereto), *provided* that all officers and Directors of the Company and all holders (other than the Holders) of at least one percent (1%) of the Company's voting securities are bound by and have entered into similar agreements. The obligations described in this Section 2.10 shall not apply to (a) a registration relating solely to employee benefit plans on Form S-1 or Form S-8 or similar forms that may be promulgated in the future, (b) a registration relating solely to a transaction on Form S-4 or

similar forms that may be promulgated in the future or (c) Common Stock (or other securities) of the Company acquired in the Initial Public Offering or in open market transactions on or after the public offering date set forth on the final prospectus used to sell shares of the Company's Common Stock in its Initial Public Offering. The Company may impose stop-transfer instructions and may stamp each such certificate with the second legend set forth in Section 2.8(b) hereof with respect to the shares of Common Stock (or other securities) subject to the foregoing restriction until the end of such one hundred and eighty (180) day, or other period. Each Holder shall execute a market standoff agreement with said underwriters in customary form consistent with the provisions of this Section 2.10.

2.11 **Delay of Registration**. No Holder shall have any right to take any action to restrain, enjoin, or otherwise delay any registration as the result of any controversy that might arise with respect to the interpretation or implementation of Section 2 hereof.

2.12 **Transfer or Assignment of Registration Rights**. The rights to cause the Company to register securities granted to a Holder by the Company under Section 2 hereof may be transferred or assigned by a Holder only to (i) a transferee or assignee of not less than 250,000 shares of Registrable Securities (as presently constituted and subject to subsequent adjustments for stock splits, stock dividends, reverse stock splits, and the like), (ii) a constituent partner or a retired partner, or the estate of any such partner, of a Holder that is a partnership; (iii) a member or a retired member, or the estate of any such member, of a Holder that is a limited liability company; (iv) a spouse, ex-spouse, domestic partner, lineal descendant or antecedent, brother or sister, the adopted child or adopted grandchild, or the spouse or domestic partner of any child, adopted child, grandchild or adopted grandchild of a Holder that is an individual, or to a trust or trusts for the exclusive benefit of such Holder or Holder's family, or (v) any Affiliate of a Holder; *provided* that (x) such transfer or assignment of Registrable Securities is effected in accordance with the terms of Section 2.8 hereof, the Amended and Restated Co-Sale Agreement of even date herewith between the Company and its stockholders party thereto, and applicable securities laws, (y) the Company is given written notice prior to said transfer or assignment, stating the name and address of the transferee or assignee and identifying the securities with respect to which such registration rights are intended to be transferred or assigned, and (iii) the transferee or assignee of such rights assumes in writing the obligations of such Holder under this Agreement, including without limitation the obligations set forth in Section 2.10 hereof.

2.13 **Limitations on Subsequent Registration Rights**. From and after the date of this Agreement, the Company shall not, without the prior written consent of Holders holding a majority of the Registrable Securities, enter into any agreement with any holder or prospective holder of any securities of the Company giving such holder or prospective holder any registration rights the terms of which are senior to the registration rights granted to the Holders hereunder.

2.14 **Termination of Registration Rights**. The right of any Holder to request registration or inclusion in any registration pursuant to Sections 2.1, 2.2 or 2.3 hereof shall terminate on the earlier of (i) such date, on or after the closing of the Company's first registered public offering of Common Stock, on which all shares of Registrable Securities held or entitled to be held upon conversion by such Holder may immediately be sold under Rule 144 during any ninety (90) day period and (ii) three (3) years after the closing of the Company's Initial Public Offering.

SECTION 3

COVENANTS OF THE COMPANY

The Company hereby covenants and agrees, as follows:

3.1 **Basic Financial Information and Inspection Rights**.

(a) ***Annual Financial Information***. The Company will furnish the following reports to each Holder:

(i) As soon as practicable after the end of each fiscal year of the Company, and in any event within one hundred and eighty (180) days after the end of each fiscal year of the Company, (a) audited consolidated balance sheets and audited consolidated statements of income, stockholders' equity and cash flows of the Company as of the end of such fiscal year, prepared in accordance with generally accepted accounting principles consistently applied and certified by independent public accountants of regionally recognized standing selected by the Company and (b) as soon as practicable after the end of the fiscal year of the Company, and in any event within thirty (30) days after the end of each fiscal year of the Company, an unaudited consolidated balance sheet of the Company and its subsidiaries, if any, as at the end of such fiscal year, and unaudited consolidated statements of income, stockholders' equity and cash flows of the Company and its subsidiaries, if any, for such year, prepared in accordance with U.S. generally accepted accounting principles consistently applied;

(b) ***Interim Financial Information***. The Company will furnish the following reports to each Holder who at the time of such furnishing holds Registrable Securities representing at least two and a half percent (2.5%) of the capitalization of the Company on a fully-diluted and as converted to Common Stock basis (the "**Significant Holders**"):

(i) As soon as practicable after the end of the first, second and third quarterly accounting periods in each fiscal year of the Company, and in any event within thirty (30) days after the end of the first, second, and third quarterly accounting periods in each fiscal year of the Company, an unaudited consolidated balance sheet of the Company and its subsidiaries, if any, as of the end of each such quarterly period, and unaudited consolidated statements of income and cash flows of the Company and its subsidiaries, if any, for such period, prepared in accordance with U.S. generally accepted accounting principles consistently applied, subject to changes resulting from normal year-end audit adjustments; and

(ii) As soon as practicable after the end of each calendar month, and in any event within thirty (30) days thereafter, unaudited consolidated balance sheets of the Company as of the end of each calendar month, and consolidated statements of income and cash flow for such period.

3.2 **Inspection**. The Company shall permit each Significant Holder (except for a Significant Holder deemed by a majority of the disinterested then-serving Directors, in good faith to be a then-current competitor of the Company), at such Holder's expense, to visit and inspect the Company's properties, to examine its books of account and records and to discuss the

Company's affairs, finances and accounts with its officers, all at such reasonable times as may be requested by the Holder. The Company shall not be obligated to provide information to any Holder, whether in written or other form, relating to a specified matter or document if (a) the Company receives advice from its legal counsel that there is a substantial risk that providing such specific documentation to, or discussing such specific matter or document in the presence of, a person who is not a member of the Board of Directors, could result in the Company's loss of attorney-client privilege with respect to such matter or documents, or (b) the Board of Directors, by a decision in good faith by at least a majority of the disinterested then-serving Directors, after reasonable consultation as to such matter by the Chief Executive Officer with such Holder, reasonably believes that such specified matter relates directly and substantially to any matter in which both the Company and the Holder have a material business or financial interest (as to Holder, other than solely by reason of the Holder's interest as a stockholder of the Company), or (c) the Board of Directors, by a decision in good faith by at least a majority of the disinterested then-serving Directors, after consultation by the Chief Executive Officer with the Company's legal counsel, believes that such specified matter involves confidential or sensitive information related to the business of the Company the disclosure of which by the Company to such Holder would or could be adverse to the interests of the Company and its stockholders.

3.3 **Confidentiality**. Each Investor will keep confidential and will not disclose, divulge, or use for any purpose (other than to monitor its investment in the Company) any confidential information obtained from the Company pursuant to the terms of this Agreement (including notice of the Company's intention to file a registration statement), unless such confidential information (a) is known or becomes known to the public in general (other than as a result of a breach of this Section 3.3 by such Investor), (b) is or has been independently developed or conceived by the Investor without use of the Company's confidential information as shown by the Investor's contemporaneous records, or (c) is or has been made known or disclosed to the Investor by a third party without a breach of any obligation of confidentiality to the Company; provided, however, that an Investor may disclose confidential information (i) to its attorneys, accountants, consultants, and other professionals to the extent necessary to obtain their services in connection with monitoring such Investor's investment in the Company; (ii) to any prospective purchaser of any Registrable Securities from such Investor, if such prospective purchaser is determined, by a decision in good faith by at least a majority of the disinterested then-serving Directors, to not be a then-current competitor of the Company, and such prospective purchaser agrees as a condition of such purchase of Registrable Securities to be bound by the provisions of this Section 3.3 hereof; (iii) to any existing or prospective Affiliate, partner, member, stockholder, or wholly owned subsidiary of such Investor who has not been determined by the Board of Directors, as set forth under clause (ii) of this Section 3.3, to be a competitor to the Company, provided that such Investor informs such person that such information is confidential and directs such person to maintain the confidentiality of such information; or (iv) as may otherwise be required by law, provided that before such required disclosure, the Investor promptly shall notify the Company in writing of the nature and timing of any such required disclosure prior to such disclosure, and shall take reasonable steps to minimize the extent of any such required disclosure.

3.4 **Invention Assignment Agreements**. The Company shall require each employee of the Company to execute a customary confidential information and invention assignment agreement as a condition of employment, and each consulting agreement by the Company shall contain customary provisions as to consultant invention assignment and confidentiality, unless in each case otherwise approved by the Required Director Approval.

3.5 **[RESERVED]**.

3.6 **[RESERVED].**

3.7 **Stock Vesting; Repurchase Price**. Unless otherwise approved by the Required Director Approval, the exercisability schedule for options granted under the Company's Amended and Restated 2012 Equity Incentive Plan (the "**Equity Incentive Plan**") which are not immediately exercisable shall be, or the vesting schedule for ratable lapsing of the Company's right of repurchase of shares from the optionee or awardee thereof on termination of services, shall be as follows, (with "vest" meaning to become exercisable, as to options that become exercisable over time, or to become no longer subject to repurchase by the Company as to immediately exercisable options, or stock awards, in each case with a lapsing vesting right of the Company to repurchase shares thereunder on such termination):

(a) 25% of the total number of shares initially under such option or award, rounded downward to the nearest whole share to account for vesting, at the rate of 1/48th per month (2.0833%), will vest on the 12-month anniversary of the vesting start (or "commencement") date of such option or grant as approved by the Board of Directors, or Committee thereof delegated by the Board of Directors the authority to grant stock options and awards under the Equity Incentive Plan, and

(b) The remaining shares under such option or award shall vest as to 2.0833% (1/48th) of the total number of shares initially under such option or award at each of the 36 monthly anniversaries occurring sequentially after such 12-month anniversary, rounded downward to the nearest whole share as to the relevant monthly anniversary as may be necessary to avoid fractional shares, for the first 35 such monthly anniversaries succeeding such twelvemonth anniversary, and for the balance of such shares under such option at the 48th monthly anniversary of such relevant vesting start date, provided at such 12-month anniversary, and at each succeeding monthly anniversary, such optionee still is then employed by, or is acting as a consultant to, the Company, as determined under the Equity Incentive Plan, and provided that all stock options and stock awards to full-time level of Vice President and above that are subject to vesting will also be subject to acceleration provisions to provide for acceleration of vesting upon a termination without cause within six (6) months following a change of control transaction, as "change of control" will be defined in the Equity Incentive Plan.

Except as may be otherwise approved by a Required Director Approval, each immediately exercisable option or award granted under the Equity Incentive Plan will provide that unvested shares will be purchasable by the Company upon the optionee's termination of service at the lower of (a) for immediately exercisable options, the exercise price of the option, or for awards, the original purchase price of such shares, and (b) the fair market value of such shares at such termination date as is determined by the Board of Directors or a Committee thereof.

3.8 **Board Meetings; Committees**. The Board of Directors shall hold at least six (6) meetings each calendar year, unless otherwise agreed by a majority of the Board of Directors. The Company shall promptly reimburse in full each Director of the Company who is not an employee of the Company for all of his or her reasonable out-of-pocket expense incurred in attending each meeting of the Board of Directors or any committee thereof, or otherwise supporting the activities of the Company, in accordance with the Company's travel policy approved by the Board of Directors. Each committee of the Board of Directors shall include at least one Series A Director and, at the election of the Series B Director, the Series B Director. One Series A Director and the Series B Director shall have the right to serve on any and all committees of the Board of Directors and each Director shall have the right to attend, as an observer, all meetings of the Company's Scientific Advisory Board and any other similar advisory boards.

3.9 **Board Observer Rights**. So long as Alta Partners VIII, LP or an Affiliate thereof ("**Alta**") holds at least 250,000 shares of Preferred Stock (as adjusted for stock splits, combinations, reorganizations and the like) the Company shall allow Alta to designate one (1) observer (the "**Alta Observer**") to attend all regular meetings of the Board of Directors and committees thereof in a nonvoting capacity. So long as RiverVest Venture Fund II, L.P. or an Affiliate thereof ("**RiverVest**") holds at least 250,000 shares of Preferred Stock (as adjusted for stock splits, combinations, reorganizations and the like) the Company shall allow RiverVest to designate one (1) observer (the "**RiverVest Observer**") to attend all regular meetings of the Board of Directors and committees thereof in a nonvoting capacity. So long as Roche Finance Ltd or an Affiliate thereof ("**Roche**") holds at least 250,000 shares of Preferred Stock (as adjusted for stock splits, combinations, reorganizations and the like) the Company shall allow Roche to designate one (1) observer (the "**Roche Observer**") to attend all regular meetings of the Board of Directors and committees thereof in a nonvoting capacity. In connection with the observer rights set forth in this Section 3.9, the Company shall give the Alta Observer, the RiverVest Observer and the Roche Observer copies of all notices, minutes, consents and other materials, financial or otherwise, which the Company provides to the Board of Directors, all of which information shall be deemed by the recipient thereof to be confidential information of the Company unless such information is otherwise confirmed in writing by the Company to such recipient to not be confidential to the Company; provided, however that the Company reserves the right to exclude the Alta Observer, and/or the RiverVest Observer and/or the Roche Observer from access to any material or meeting or portion thereof if the Board of Directors determines (a) by a decision in good faith by at least a majority of the then-serving Directors, and upon advice from its legal counsel, that there is a substantial risk that such individual observer's presence during such portion of the relevant meeting could result in the Company's loss of attorney-client privilege with respect to such matter or documents, (b) by a decision in good faith by at least a majority of the then-serving Directors, after reasonable consultation as to such matter by the Chief Executive Officer with such observer, reasonably believes that such specified matter relates directly and substantially to any matter in which both the Company and the observer entity have a material business or financial interest (as to such observer entity, other than solely by reason of the observer entity's interest as a stockholder of the Company) or such matter creates a conflict of interest for such observer entity, or (c) by a decision in good faith by at least a majority of the then-serving Directors, after consultation by the Chief Executive Officer with the Company's legal counsel, that such specified matter involves confidential or sensitive information related to the business of the Company the disclosure of which by the Company to such observer entity would or could be adverse to the interests of the Company and its stockholders.

3.10 **Directors and Officers Insurance**. To the extent such coverage remains available on commercially reasonable terms, the Company shall maintain from financially sound and reputable insurers, customary Directors and officers insurance covering the Directors and their affiliated funds and the officers of the Company, in the amount of at least $2,000,000 and subject to further approval by the Board of Directors, the Company shall increase such coverage immediately prior to the Initial Public Offering to at least $5,000,000.

3.11 **Additional Covenants of the Company**. The Company shall not (whether by amendment, merger or otherwise) take any of the following actions without the Required Director Approval:

(a) take any action set forth in Article V, Section 6 of the Restated Certificate;

(b) approve all budgets and operating plans of the Company;

(c) approve all preclinical trial and clinical trial plans;

(d) amend the Equity Incentive Plan or increase or decrease the authorized number of shares reserved under the Equity Incentive Plan or create, amend or reserve any shares under all other equity incentive plans of the Company, including any change to the normal vesting schedule for stock options or stock awards as set forth in Section 3.5 hereof;

(e) issue any securities listed in Article V, Section 4(d)(i) of the Restated Certificate;

(f) exclude any securities from any offering by the Company which the Right of First Refusal as set forth in Section 4 hereof would apply;

(g) license all or substantially all of the assets of the Company;

(h) make any loan or advance to, or own any stock or other securities of, any subsidiary or other corporation, partnership, or other entity unless it is wholly owned by the Company;

(i) make any loan or advance to any person, including any employee or Director, 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;

(j) guarantee any indebtedness except for trade accounts of the Company or any subsidiary arising in the ordinary course of business;

(k) make any investment other than in accordance with the investment policy approved by the Board of Directors;

(l) make any single expenditure that is not included in the budget and is in excess of a threshold amount determined by the Board of Directors;

(m) incur any aggregate indebtedness note already included in a budget that has been approved by the Required Director Approval that is in excess of a threshold amount to be determined by the Board of Directors;

(n) exceed the expenses contemplated in the budget approved by the Board of Directors for such year that is in excess of a threshold amount to be determined by the Board of Directors;

(o) approve any material revisions to the then current business plan of the Company;

(p) enter into or be a party to any material transaction with any Affiliate of the Company or any Director, officer or employee of the Company or any "associate" (as defined in Rule 12b-2 promulgated under the Exchange Act) of any such person;

(q) hire, fire or change the compensation of any executive officer of the Company (vice president level and above);

(r) change the principal business of the Company;

(s) make any material change in the Company's then-current line(s) of business or business model, or enter any new lines(s) of business, or exit any then-current line of business;

(t) sell, transfer, license, pledge or encumber technology or intellectual property, other than licenses granted in the ordinary course of business;

(u) make any material investments into, or enter into any joint venture with, or acquire any third party or acquire all of substantially all of any third party's assets; or

(v) prepare or file for an Initial Public Offering.

3.12 **Termination of Covenants**. The covenants set forth in Section 3 hereof shall terminate and be of no further force and effect upon the earlier of the closing of the Company's Qualified IPO or a Liquidation Event.

SECTION 4

RIGHT OF FIRST REFUSAL

4.1 **Right of First Refusal to Holders**. The Company hereby grants to each Holder the right of first refusal (the "**Right of First Refusal**") to purchase its Pro Rata Share of New Securities (as defined in Section 4.1(a) hereof) which the Company may, from time to time, propose to sell and issue after the date of this Agreement. A Holder's "**Pro Rata Share**", for purposes of this Right of First Refusal, is equal to the ratio of (i) the number of shares of

Common Stock owned by such Holder immediately prior to the issuance of New Securities (assuming full conversion of the Preferred Stock and full conversion or exercise of all outstanding convertible securities, rights, options and warrants held by such Holder) to (ii) the total number of shares of Common Stock outstanding immediately prior to the issuance of New Securities (assuming full conversion of the Preferred Stock and full conversion or exercise of all outstanding convertible securities, rights, options and warrants and all securities reserved for issuance under the Company's stock plans). This Right of First Refusal shall be subject to the following provisions:

(a) "***New Securities***" means any capital stock (including Common Stock and/or Preferred Stock) of the Company whether now authorized or not, and rights, convertible securities, options or warrants to purchase such capital stock, and securities of any type whatsoever that are, or may become, exercisable or convertible into capital stock; *provided* that the term "**New Securities**" does not include (i) any securities that are not deemed to be "Additional Shares of Common" pursuant to Article V, Section 4(d)(i) of the Restated Certificate, (ii) any shares of Series B Preferred Stock issued pursuant to the Stock Purchase Agreement (iii) or any shares excluded by the Required Director Approval.

(b) In the event the Company proposes to undertake an issuance of New Securities, it shall give each Holder written notice of its intention, describing the type of New Securities, and their price and the general terms upon which the Company proposes to issue the same. Each Holder shall have twenty (20) days after any such notice is mailed or delivered to agree to purchase such Holder's Pro Rata Share of such New Securities for the price and upon the terms specified in the notice by giving written notice to the Company, in substantially the form attached as Schedule I, and stating therein the quantity of New Securities to be purchased.

(c) In the event that following the exercise of the Right of First Refusal by the Holders described in Section 4.1(b) hereof there are any New Securities which have not been subscribed for within such ten- (10-) day period, the Company shall promptly, in writing, inform each Holder which purchases all the shares available to it ("**Fully-Exercising Holder**") of any other Holder's failure to do likewise or that all such New Securities have been subscribed for. During the ten (10) day period commencing after receipt by the Fully-Exercising Holder of such information, each Fully-Exercising Holder shall be entitled to subscribe for and purchase that portion of the New Securities for which Holders were entitled to subscribe but which were not subscribed for by the Holders, which is equal to the ratio of (a) the number of shares of Common Stock owned by such Fully-Exercising Holder immediately prior to the issuance of New Securities (assuming full conversion of the Preferred Stock to Common Stock and full conversion or exercise, as relevant, of all outstanding convertible securities, rights, options and warrants held by such Fully-Exercising Holder) to (b) the total number of shares of Common Stock owned by all such Fully-Exercising Holders immediately prior to the issuance of New Securities (assuming full conversion of the Preferred Stock and full conversion or exercise, as relevant, of all outstanding convertible securities, rights, options and warrants held by such Fully-Exercising Holder) who desire to purchase any or all of such unsubscribed New Securities.

(d) In the event the Holders fail to exercise fully the Right of First Refusal within said twenty (20) day period (the "**Election Period**"), the Company shall have ninety (90) days thereafter to sell or enter into an agreement (pursuant to which the sale of New Securities covered thereby shall be closed, if at all, within ninety (90) days from the date of said agreement) to sell that portion of the New Securities with respect to which the Holders' Right of First Refusal option set forth in this Section 4.1 was not exercised, at a price and upon terms no more favorable to the purchasers thereof than specified in the Company's notice to Holders delivered pursuant to Section 4.1(b) hereof. In the event the Company has not sold within such ninety (90) day period following the Election Period, or such ninety (90) day period following the date of said agreement, the Company shall not thereafter issue or sell any New Securities, without first again offering such securities to the Holders in the manner provided in this Section 4.1.

(e) The Right of First Refusal shall expire upon, and shall not be applicable to the Company's Qualified IPO or a Liquidation Event.

(f) Notwithstanding anything herein to the contrary, if (a) (i) any sale of the Company's securities is excluded from the Right of First Refusal pursuant to Section 4.1(a)(iii) or as a result of any amendment to the definition of New Securities or Article V, Section 4(d)(i) of the Restated Certificate, or (ii) the Right of First Refusal is waived with respect to any sale of the Company's securities pursuant to Section 5.1, and (b) any Holder purchases securities of the Company in such sale transaction (a "**Participating Holder**"), then each other Holder shall have a Right of First Refusal with respect to such transaction to purchase its Pro Rata Share of such securities based on the number of shares of such securities purchased by each Participating Holder and the relative Pro Rata Share(s) of such Participating Holder(s) as compared to such other Holder. If there is more than one Participating Holder, the Pro Rata Share of each other Holder shall be determined in accordance with the foregoing in the manner that results in the largest number of securities purchasable by other Holders. For example, if a Participating Holder purchases 1,000 shares of New Securities in such a sale transaction, and such Participating Holder's Pro Rata Share is ten percent (10%), then another holder with a Pro Rata Share of five percent (5%) would have the right to purchase 500 shares of New Securities in such sale transaction. The other provisions of this Section 4 shall apply *mutatis mutandis* to such transaction.

SECTION 5

MISCELLANEOUS

5.1 **Amendment**. Except as expressly provided herein, neither this Agreement nor any tern' hereof may be amended, waived, discharged or terminated other than by a written instrument referencing this Agreement and signed by the Company and the Holders holding a majority of the Registrable Securities (excluding any of such shares that have been sold to the public or pursuant to Rule 144, and excluding, with respect to Section 2 hereof (other than Sections 2.8, 2.9 and 2.10 hereof), any of such shares held by any Holders whose rights to request registration or inclusion in any registration statement pursuant to Section 2 hereof have terminated in accordance with Section 2.14 hereof); *provided*, *however*, that if any amendment, waiver, discharge or termination operates in a manner that treats any Holder different from other Holders, the consent of such Holder shall also be required for such amendment, waiver, discharge or termination. Any such amendment, waiver, discharge or termination effected in accordance with this paragraph shall be binding upon each Holder and each future holder of all such securities of Holder. Each Holder acknowledges that by the operation of this paragraph, the

holders of a majority of the Registrable Securities (excluding any of such shares that have been sold to the public or pursuant to Rule 144, and excluding, with respect to Section 2 hereof (other than Sections 2.8, 2.9 and 2.10 hereof), any of such shares held by any Holders whose rights to request registration or inclusion in any registration statement pursuant to Section 2 hereof have terminated in accordance with Section 2.14 hereof) will have the right and power to diminish or eliminate all rights of such Holder under this Agreement. Notwithstanding the foregoing or anything herein to the contrary, the rights of each Holder under Section 4.1(f) may be amended, waived, discharged or terminated, other than in connection with the termination of this Agreement as a whole, only by a written instrument signed by such Holder.

5.2 **Notices, Etc**. All notices, requests, consents and other communications hereunder to any party will be deemed to be sufficient if contained in a written instrument delivered in person, including delivery by recognized express courier such as FedEx or UPS, fees prepaid, or sent by facsimile transmission, in each case addressed as set forth below such party's signature below, or to such other address as may hereinafter be designated in writing by the recipient to the sender pursuant to this Section 5.2. Notices hereunder may not be sent by mail or by email All such notices, requests, consents and other communications will be deemed to have been received in the case of personal delivery, including delivery by express courier, on the date of such delivery, or, in the case of facsimile transmission, upon transmission without notification of failure of transmission.

5.3 **Governing Law**. This Agreement shall be governed by the laws of the State of California without regard to choice of laws or conflict of laws provisions thereof.

5.4 **Successors and Assigns**. Except as otherwise provided herein, the provisions hereof shall inure to the benefit of, and be binding upon, the successors, assigns, and as relevant heirs, executors, and administrators, of the parties hereto. 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, or as relevant, their heirs, executors and administrators, any rights, remedies, obligations, or liabilities under or by reason of this Agreement, except as expressly provided by this Agreement.

5.5 **Entire Agreement**. This Agreement and the exhibits hereto constitute the full and entire understanding and agreement between the parties with regard to the subjects hereof. No party hereto shall be liable or bound to any other party in any manner with regard to the subjects hereof or thereof by any warranties, representations or covenants except as specifically set forth herein.

5.6 **Delays or Omissions**. No delay or omission to exercise any right, power, or remedy accruing to any holder of any Registrable Securities upon any breach or default of the Company under this Agreement shall impair any such right, power, or remedy of such holder, nor shall it be construed to be a waiver of any such breach or default, or an acquiescence therein, or of or in 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, permit, consent, or approval of any kind or character on the part of any holder of any breach or default under this Agreement, or any waiver on the part of any holder of any provisions or conditions of this Agreement, must be in writing and shall be effective only to

the extent specifically set forth in such writing or as provided in this Agreement. All remedies, either under this Agreement or by law or otherwise afforded to any holder, shall be cumulative and not alternative. Each Investor (i) is not a third-party beneficiary with respect to the obligations of any of the other Investors under this Agreement. Only the Company shall have the right to seek enforcement of, or remedies under, the terms of this Agreement against any Investor breaching such terms; provided, however, that nothing contained herein shall be deemed to restrict or waive an Investor's right to bring a derivative claim on behalf of the Company in accordance with the laws of the State of Delaware if the Company refuses to seek enforcement of the terms of this Agreement.

5.7 **Execution and Delivery**. A facsimile or other reproduction of this Agreement may be executed by one or more parties hereto and delivered by such party by facsimile or any similar electronic transmission device pursuant to which the signature of or on behalf of such party can be seen. Such execution and delivery shall be considered valid, binding and effective for all purposes. At the request of any party hereto, all parties hereto agree to execute and deliver an original of this Agreement as well as any facsimile or other reproduction hereof.

5.8 **Jurisdiction; Venue**. The parties consent to the exclusive jurisdiction of, and venue in, the state courts in Santa Clara County in the State of California (or in the event of exclusive federal jurisdiction, the courts of the Northern District of California) with respect to any dispute arising out of or related to this Agreement which is not resolved by the relevant parties thereto themselves in writing.

5.9 **Jury Trial**. EACH OF THE PARTIES HERETO HEREBY IRREVOCABLY WAIVES; TO THE FULLEST EXTENT PERMITTED BY LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING (WHETHER SOUNDING IN CONTRACT, TORT OR OTHERWISE) ARISING OUT OF OR RELATED TO THIS AGREEMENT. If the waiver of jury trial set forth in this Section 5.9 is determined by a court of competent jurisdiction to not be enforceable, then any claim or cause of action arising out of or relating to this Agreement which is not resolved by the relevant parties thereto themselves in writing shall be settled by judicial reference pursuant to California Code of Civil Procedure Section 638 et seq. before a referee sitting without a jury, such referee to be mutually acceptable to the parties or, if no agreement is reached, by a referee appointed by the Presiding Judge of the California Superior Court for Santa Clara County. This Section 5.9 shall not restrict a party hereto from exercising remedies under the Uniform Commercial Code or from exercising pre judgment remedies under applicable law.

5.10 **Further Assurances**. Each party hereto agrees to execute and deliver, by the proper exercise of its corporate, limited liability company, partnership or other powers, all such other and additional instruments and documents and do all such other acts and things as may be necessary to more fully effectuate this Agreement.

5.11 **Termination Upon Change of Control**. Notwithstanding anything to the contrary herein, this Agreement (excluding any then existing obligations) shall terminate upon a Liquidation Event.

5.12 **Conflict**. In the event of any conflict between the terms of this Agreement and the Company's Restated Certificate or its Bylaws, the terms of the Company's Restated Certificate or its Bylaws, as the case may be, will control.

5.13 **Dispute Resolution Fees**. If any action at law or in equity is necessary to enforce or interpret the terms of this Agreement or the Restated Certificate, the prevailing party shall be entitled to reasonable attorneys' fees, costs, and disbursements in addition to any other relief to which such party may be entitled.

5.14 **Counterparts**. This Agreement may be executed in any number of counterparts and signatures may be delivered by hand, or by facsimile, or by electronic mail (email) as a pdf attachment, each of which may be executed by less than all parties, each of which shall be enforceable against the parties actually executing such counterparts, and all of which together shall constitute one instrument.

5.15 **Severability**. If any provision of this Agreement or any portion thereof becomes, as a result of a change of law, or is declared by a court of competent jurisdiction to be, illegal, unenforceable, or void, such portion of such provision, or such provision in its entirety, to the extent necessary, shall be severed from this Agreement and the balance of such provision, as relevant, and the remainder of this Agreement shall remain enforceable in accordance with its terms.

5.16 **Counting of Time**. Whenever days are to be counted under this Agreement, the first day will not be counted and the last day will be counted, provided that if any day on which a period specified in this Agreement would otherwise terminate falls on a weekend or on a federal or Delaware or California State holiday, then that day shall be ignored for purposes of counting time hereunder.

5.17 **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.

5.18 **Aggregation of Stock**. All securities held or acquired by Affiliates of an Investor (including but not limited to: (i) a constituent partner or a retired partner of an Investor that is a partnership; (ii) a parent, subsidiary or other Affiliate of an Investor that is a corporation; (iii) an immediate family member living in the same household, a descendant, or a trust therefor, in the case of an Investor who is an individual; (iv) a current or former member of an Investor that is a limited liability company or (v) any mutual fund or other pooled investment vehicle now or hereafter existing that is advised or managed by the same investment adviser as, or an Affiliate of the investment adviser of, an Investor) shall be aggregated together for the purpose of determining the availability of any rights under this Agreement which are triggered by the beneficial ownership of a threshold number of shares of the Company's capital stock.

5.19 **Defined Terms from Restated Certificate**. If a capitalized term used in this Agreement is defined by cross reference to the Company's Restated Certificate and as of a given point in time such term is not defined in the Restated Certificate, such capitalized term shall have the meaning given to such term in the most recent version of the Restated Certificate preceding such point in time that contained such defined term.

5.20 **Amendment and Restatement of Prior Agreement**. The Prior Agreement is hereby amended in its entirety and restated as set forth herein. All provisions of, rights granted and covenants made in the Prior Agreement are hereby waived, released and superseded in their entirety and shall have no further force or effect.

5.21 **Right to Conduct Activities**. The Company acknowledges that certain Investors are in the business of venture capital investing ("**VC Investors**") and therefore review the business plans and related proprietary information of many enterprises, including enterprises which may have products or services which compete directly or indirectly with those of the Company. Nothing in this Agreement shall preclude or in any way restrict the Investors from investing or participating in any particular enterprise whether or not such enterprise has products or services which compete with those of the Company, and VC Investors shall not be deemed to be a competitor of the Company due to minority investments or board designation rights in competitors, *provided*, *however*, that a representative of a VC Investor who is a member of the Board or who serves as a Board observer of the Company may not also be a member of the Board or serve as a Board observer for a competitor of the Company. The Company hereby agrees that, to the extent permitted under applicable law, its Investors shall not be liable to the Company for any claim arising out of, or based upon, (i) the investment by such Investors in any entity competitive with the Company, or (ii) actions taken by any partner, officer or other representative of such Investors to assist any such competitive company, whether or not such action was taken as a member of the board of directors of such competitive company or otherwise, and whether or not such action has a detrimental effect on the Company; provided, however, that the foregoing shall not relieve (x) any of the Investors from liability associated with the unauthorized disclosure of the Company's confidential information obtained pursuant to this Agreement, or (y) any director or officer of the Company from any liability associated with his or her fiduciary duties to the Company.

(*signature pages follow*)

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

COMPANY:

ALLAKOS INC.

By: /s/ Robert Alexander
Name: Robert Alexander
Title: Chief Executive Officer

Address for Notice:
75 Shoreway Rd A
San Carlos, CA 94070
Attention: Chief Executive Officer

(Signature Page to Amended and Restated Investors' Rights Agreement)

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

NEA VENTURES 2017,
LIMITED PARTNERSHIP

By: /s/ Louis S. Citron
Name: Louis S. Citron
Title: Vice President

Address for notice:

NEA Ventures 2017, Limited Partnership
1954 Greenspring Drive, Suite 600
Timonium, MD 21093

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

NEW ENTERPRISE ASSOCIATES 16, L.P.
By: NEA Partners 16, L.P., its general partner
By: NEA 16 GP, LLC, its general partner

By: /s/ Louis S. Citron
Name: Louis S. Citron
Title: Chief Legal Counsel

Address for notice:

New Enterprise Associates 16, L.P.
1954 Greenspring Drive, Suite 600
Timonium, MD 21093

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

RIVERVEST VENTURE FUND II, L.P.
By: RiverVest Venture Partners II, L.P., its General Partner
By: RiverVest Venture Partners II, LLC, its sole General Partner

By: /s/ John P. McKearn
John McKearn, Ph.D., Authorized Person

Address for Notice:
101 S. Hanley Road, Suite 1850
St. Louis, Missouri 63105
Attn: John McKearn, Ph.D.

With a copy to:

Gloria M. Skigen, Esq.
Holland & Knight LLP
263 Tresser Blvd., Suite 1400
Stamford, Connecticut 06901

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

RIVERVEST VENTURE FUND II (OHIO), L.P.
By: RiverVest Venture Partners II (Ohio), LLC, its General Partner
By: RiverVest Venture Partners II, L.P., its sole member
By: RiverVest Venture Partners II, LLC, its general partner

By: /s/ John P. McKearn
John McKearn, Ph.D., Authorized Person

Address for Notice:
101 S. Hanley Road, Suite 1850
St. Louis, Missouri 63105
Attn: John McKearn, Ph.D.

With a copy to:

Gloria M. Skigen, Esq.
Holland & Knight LLP
263 Tresser Blvd., Suite 1400
Stamford, Connecticut 06901

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INVESTOR:

RIVERVEST VENTURE FUND III, L.P.
By: RiverVest Venture Partners III, L.P., its General Partner
By: RiverVest Venture Partners III, LLC, its sole General Partner

By: /s/ John P. McKearn
John McKearn, Ph.D., Manager

Address for Notice:
101 S. Hanley Road, Suite 1850
St. Louis, Missouri 63105
Attn: John McKearn, Ph.D.

With a copy to:

Gloria M. Skigen, Esq.
Holland & Knight LLP
263 Tresser Blvd., Suite 1400
Stamford, Connecticut 06901

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INVESTOR:

RIVERVEST VENTURE FUND III (OHIO), L.P.
By: RiverVest Venture Partners III (Ohio), LLC, its General Partner
By: RiverVest Venture Partners III, L.P., its sole member
By: RiverVest Venture Partners III, LLC, its general partner

By: /s/ John P. McKearn
John McKearn, Ph.D., Member

Address for Notice:
101 S. Hanley Road, Suite 1850
St. Louis, Missouri 63105
Attn: John McKearn, Ph.D.

With a copy to:

Gloria M. Skigen, Esq.
Holland & Knight LLP
263 Tresser Blvd., Suite 1400
Stamford, Connecticut 06901

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

3X5 RIVERVEST FUND II, L.P.
By: 3x5 RiverVest Partners II, LLC, its General Partner
By: RiverVest 3x5 Managers II, L.P., its Member
By: RiverVest 3x5 Managers II, LLC, its General Partner

By: /s/ John P. McKearn
John McKearn, Ph.D., Member

Address for Notice:
101 S. Hanley Road, Suite 1850
St. Louis, Missouri 63105
Attn: John McKearn, Ph.D.

With a copy to:

Gloria M. Skigen, Esq.
Holland & Knight LLP
263 Tresser Blvd., Suite 1400
Stamford, Connecticut 06901

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INVESTOR:

3X5 RIVERVEST FUND II-B, L.P.
By: 3x5 RiverVest Partners II, LLC, its General Partner
By: RiverVest 3x5 Managers II, L.P., its Member
By: RiverVest 3x5 Managers II, LLC, its General Partner

By: /s/ John P. McKearn
John McKearn, Ph.D., Member

Address for Notice:
101 S. Hanley Road, Suite 1850
St. Louis, Missouri 63105
Attn: John McKearn, Ph.D.

With a copy to:

Gloria M. Skigen, Esq.
Holland & Knight LLP
263 Tresser Blvd., Suite 1400
Stamford, Connecticut 06901

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

ALTA PARTNERS VIII, LP
By: Alta Partners Management VIII, LLC

By: /s/ Larry Randal
Name: Larry Randal
Title: CFO

Address for Notice:
Alta Partners VIII, L.P.
One Embarcadero Center, Suite 3700
San Francisco, California 94111
Attn: Finance

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

ALTA PARTNERS IX, LP
By: Alta Partners Management IX, LLC, its general partner

By: /s/ Larry Randal
Name: Larry Randal
Title: CFO

Address for Notice:
Alta Partners IX, L.P.
One Embarcadero Center, Suite 3700
San Francisco, California 94111
Attn: Finance

(Signature Page to Amended and Restated Investors' Rights Agreement)

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

ROCHE FINANCE LTD.

By: /s/ Carole Nuechterlein
Name: Carole Nuechterlein
Title: Authorized Signatory

By: /s/ Andreas Knierzinger
Name: Andreas Knierzinger
Title: Authorized Signatory

Notices are to be sent to:
Roche Finance Ltd.
Attn: Carole Nuechterlein
Grenzacherstrasse 122
Basel, CH-Switzerland 4070

A copy of all notices sent to Roche Finance Ltd. shall be simultaneously sent to the following:

Hoffmann-LaRoche Inc.
Attn: General Counsel
Overlook at Great Notch
150 Clove Road
8th Floor – Suite 8
Little Falls, New Jersey 07424
Fax: 973-890-8433

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

SMALLCAP WORLD FUND, INC.
By: Capital Research and Management Company, for and on behalf of SMALLCAP World Fund, Inc.

By: /s/ Walter R. Burkley
Name: Walter R. Burkley
Title: Authorized Signatory

Address for Notice:
SMALLCAP World Fund, Inc.
c/o Capital Research and Management Company
333 South Hope Street, 33rd Floor
Los Angeles, California 90071
Attention: Jae Won Chung
email: jae.chung@capgroup.com

with a copy, which shall not constitute notice, to:

SMALLCAP World Fund, Inc.
333 South Hope Street, 53rd Floor
Los Angeles, California 90071
Attention: Craig Gordon
email: craig.gordon@capitalglobal.com

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

LIFESCI VENTURE PARTNERS I, LP
By: LifeSci Venture GP, LLC, its General Partner

By: /s/ Paul Yook
Name:
Title:

Address for Notice:
LifeSci Venture GP, LLC
250 West 55th Street, 16th Floor
New York, NY 10019

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

LIFESCI VENTURE SPV IV, LLC
By: LifeSci Venture GP, LLC, its General Partner

By: /s/ Paul Yook
Name:
Title:

Address for Notice:
LifeSci Venture GP, LLC
250 West 55th Street, 16th Floor
New York, NY 10019

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

SAMSARA BIOCAPITAL, L.P.
By: Samsara BioCapital GP, LLC, General Partner

By: /s/ Srinivas Akkaraju
Name:
Title:

Address for Notice:

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

ROCK SPRINGS CAPITAL MASTER FUND LP
By: Rock Springs General Partner LLC

By: /s/ Mark Bussard
Name: Mark Bussard
Title: Managing Member

Address for Notice:
Rock Springs Capital Master Fund LP
650 South Exeter Street, Suite 1070
Baltimore, MD 21202
Attn: General Counsel

(Signature Page to Amended and Restated Investors' Rights Agreement)

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

CKE ASSOCIATES, LLC

By: /s/ Michael S. Ovitz
Name: Michael S. Ovitz
Title: CEO

Address for Notice:

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

DAVID LAMOND

By: /s/ David Lamond

Address for Notice:

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

REDMILE BIOPHARMA INVESTMENTS I, L.P.

By: /s/ Jeremy Green
Name: Jeremy Green
Title: Managing Member of the General Partner and the Management Company

(Signature Page to Amended and Restated Investors' Rights Agreement)

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

REDMILE CAPITAL OFFSHORE FUND, LTD.

By: /s/ Jeremy Green
Name: Jeremy Green
Title: Managing Member of the Investment Manager

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

REDMILE CAPITAL OFFSHORE FUND II, LTD.

By: /s/ Jeremy Green
Name: Jeremy Green
Title: Managing Member of the Investment Manager

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

REDMILE CAPITAL FUND, LP

By: /s/ Jeremy Green
Name: Jeremy Green
Title: Managing Member of the General Partner and the Investment Manager

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

ROBERT SCHLEIMER

By: /s/ Robert Schleimer

Address for Notice:
Robert Schleimer

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

BRUCE SCOTT BOCHNER REVOCABLE TRUST

By: /s/ Bruce Scott Bochner
Name: Bruce Scott Bochner
Title: Trustee

Address for Notice:
Bruce Scott Bochner Revocable Trust

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

JACQUELINE ANN SCHAFFER-BOCHNER, TRUSTEE FOR THE JACQUELINE ANN-SCHAFFER-BOCHNER REVOCABLE TRUST

By: /s/ Jacqueline Ann Schaffer-Bochner
Name: Jacqueline Ann Schaffer-Bochner
Title: Trustee

Address for Notice:
Jacqueline Ann Schaffer-Bochner, trustee for the Jacqueline Ann Schaffer-Bochner Revocable Trust

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

EVE G. MERMEL & SCOTT J. MERMEL, TRUSTEES FOR THE EVE G. MERMEL REVOCABLE TRUST DATED 8/16/1988

By: /s/ Eve G. Mermel
Name: Eve G. Mermel
Title: Trustee

Address for Notice:
Eve G. Mermel & Scott J. Mermel, trustees for the Eve G. Mermel Revocable Trust dated 8/16/1988

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

JONATHAN ALBERT SCHLEIMER

By: /s/ Jonathan Albert Schleimer

Address for Notice:
Jonathan Albert Schleimer

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

ALEJANDRO DORENBAUM

By: /s/ Alejandro Dorenbaum

Address for Notice:
Alejandro Dorenbaum

(Signature Page to Amended and Restated Investors' Rights Agreement)

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

BARRY BOCHNER AND LAURIE BOCHNER, TRUSTEES FOR THE BOCHNER REVOCABLE TRUST DATED 12/13/2005

By: /s/ Barry Bochner
Name:
Title:

Address for Notice:
Barry Bochner and Laurie Bochner, trustees for the Bochner Revocable Trust dated 12/13/2005

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

BEBBINGTON FAMILY TRUST DATED MAY 7TH 2003

By: /s/ Chris Bebbington
Name:
Title:

Address for Notice:
Bebbington Family Trust

(Signature Page to Amended and Restated Investors' Rights Agreement)

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

WS INVESTMENT COMPANY, LLC (2017A)

By: /s/ James Terranova
Name:
Title:

Address for Notice:
WS Investment Company, LLC (2017A)
650 Page Mill Road
Palo Alto, CA 94304

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

PFM HEALTHCARE MASTER FUND, L.P.
By: Partner Fund Management, L.P., its investment adviser

By: /s/ Yuan DuBord
Name: Yuan DuBord
Title: CFO

Address for Notice:
Partner Fund Management, L.P.
4 Embarcadero Center #3500
San Francisco, CA 94111

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

PFM HEALTHCARE OPPORTUNITIES MASTER FUND, L.P.
By: Partner Fund Management, L.P., its investment adviser

By: /s/ Yuan DuBord
Name: Yuan DuBord
Title: CFO

Address for Notice:
Partner Fund Management, L.P.
4 Embarcadero Center #3500
San Francisco, CA 94111

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

PFM HEALTHCARE EMERGING GROWTH MASTER FUND, L.P.
By: Partner Fund Management, L.P., its investment adviser

By: /s/ Yuan DuBord
Name: Yuan DuBord
Title: CFO

Address for Notice:
Partner Fund Management, L.P.
4 Embarcadero Center #3500
San Francisco, CA 94111

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

PFM HEALTHCARE PRINCIPALS FUND, L.P.
By: Partner Investment Management, L.P., its investment adviser

By: /s/ Yuan DuBord
Name: Yuan DuBord
Title: CFO

Address for Notice:
Partner Fund Management, L.P.
4 Embarcadero Center #3500
San Francisco, CA 94111

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

PARTNER INVESTMENTS, L.P.
By: Partner Investment Management, L.P., its investment adviser

By: /s/ Yuan DuBord
Name: Yuan DuBord
Title: CFO

Address for Notice:
Partner Fund Management, L.P.
4 Embarcadero Center #3500
San Francisco, CA 94111

(Signature Page to Amended and Restated Investors' Rights Agreement)

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INVESTOR:

JOHN Q. ADAMS JR. AND VICKI J. ADAMS

By: /s/ John Q. Adams
Name:

(Signature Page to Amended and Restated Investors' Rights Agreement)

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

DYETT FAMILY TRUST

By: /s/ John Dyett
Name: John Dyett
Title: Trustee

(Signature Page to Amended and Restated Investors' Rights Agreement)

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

ALVARO F GUILLEM AND MARY A GUILLEM TEN/COM

By: /s/ Alvaro F. Guillem
Name: Alvaro F. Guillem
Title: Self

(Signature Page to Amended and Restated Investors' Rights Agreement)

The parties are signing this Amended and Restated Investors' Rights Agreement as of the date stated in the introductory clause.

INVESTOR:

BERTI PROUGH TRUST

By: /s/ Stephen Prough
Name: Stephen Prough
Title: Trustee

(Signature Page to Amended and Restated Investors' Rights Agreement)

SCHEDULE I
NOTICE AND WAIVER/ELECTION OF
RIGHT OF FIRST REFUSAL

The undersigned Holder hereby waives or exercises, as indicated below, the undersigned Holder's Right of First Refusal under the Amended and Restated Investors' Rights Agreement dated as of November 30, 2017 (the "Investors' Rights Agreement"), by and among Allakos Inc., a Delaware corporation (the "Company") , the undersigned Holder or such Holder's predecessor in interest, and other Holders:

1. Waiver of [ ] days' notice period in which to exercise Right of First Refusal: **(please check only one below)**:

The undersigned Holder:

( ) **WAIVES** in full the notice period described above.

( ) **DOES NOT WAIVE** the notice period described above.

2. Issuance and Sale of New Securities: (**please check only one below**):

The undersigned Holder:

( ) **WAIVES** in full the Right of First Refusal granted to the undersigned Holder under the Amended and Restated Investors' Rights Agreement with respect to the issuance of the New Securities.

( ) **ELECTS TO PARTICIPATE** in such issuance by purchasing $ (*please provide amount*) in New Securities proposed to be issued by the Company representing LESS than the undersigned Holder's *pro rata* portion of the aggregate of $[ ] in New Securities being offered in the financing.

( ) **ELECTS TO PARTICIPATE** in such issuance by purchasing $ in New Securities proposed to be issued by the Company, representing the undersigned Holder's FULL *pro rata* portion of the aggregate of $[ ] in New Securities being offered in the financing.

( ) **ELECTS TO PARTICIPATE** in such issuance by purchasing the undersigned Holder's full *pro rata* portion of the aggregate of $[ ], in New Securities being offered by the Company in the financing AND, to the extent available, the greater of (x) an additional $ (*please provide amount*) or (y) the undersigned Holder's *pro rata* portion of any remaining. investment amount available in the event other Significant Holders (as defined in the Investors" Rights Agreement) do not exercise their full rights of first refusal with respect to the New Securities being offered in the financing.

[*signature page follows*]

Date: _____

_____
(Print Holder name)

_____
(Signature)

_____
(Print name of signatory, if signing for an entity)

_____
(Print title of signatory, if signing for an entity)

This is neither a commitment to purchase nor a commitment to issue the New Securities described above. Such issuance can only be made by way of definitive documentation related to such issuance. The Company will supply the Holder with such definitive documentation upon request or if the Holder indicates that the Holder desires to exercise the Holder's first offer rights under the Investors' Rights Agreement in whole or in part.

EXHIBIT A

INVESTORS

Series A

Alta Partners VIII, LP

Roche Finance Ltd.

RiverVest Venture Fund II, L.P.

RiverVest Venture Fund III, L.P.

RiverVest Venture Fund II (Ohio), L.P.

Bruce Bochner

Christopher Bebbington

Robert Schleimer

Nenad Tomasevic

Esra Nutku-Bilir

Series B

New Enterprise Associates 16, L.P.

NEA Ventures 2017, Limited Partnership

Alta Partners IX, LP

Alta Partners VIII, LP

3x5 RiverVest Fund II, L.P.

3x5 RiverVest Fund II-B, L.P.

RiverVest Venture Fund II (Ohio), L.P.

RiverVest Venture Fund II, L.P.

RiverVest Venture Fund III (Ohio), L.P.

RiverVest Venture Fund III, L.P.

Roche Finance Ltd

SMALLCAP World Fund, Inc.

Redmile Capital Fund, LP

Redmile Capital Offshore Fund, Ltd.

Redmile Capital Offshore Fund II, Ltd.

Redmile Biopharma Investments, I, L.P.

PFM Healthcare Master Fund, L.P.

PFM Healthcare Opportunities Master Fund, L.P.

PFM Healthcare Emerging Growth Master Fund, L.P.

PFM Healthcare Principals Fund, L.P.

Partner Investments, L.P.

LifeSci Venture SPV IV, LLC

LifeSci Venture Partners I, LP

Samsara BioCapital, L.P.

Rock Springs Capital Master Fund LP

CKE Associates, LLC

David Lamond

Berti Prough Trust

Dyett Family Trust

John Q. Adams Jr. and Vicki J. Adams

Alvaro F Guillem and Mary A Guillem Ten/Com

Robert Schleimer

Bruce Scott Bochner Revocable Trust

Jacqueline Ann Schaffer-Bochner, trustee for the Jacqueline Ann Schaffer-Bochner Revocable Trust

Eve G. Mermel & Scott J. Mermel, trustees for the Eve G. Mermel Revocable Trust dated 8/16/1988

Jonathan Albert Schleimer

Alejandro Dorenbaum

Barry Bochner and Laurie Bochner, trustees for the Bochner Revocable Trust dated 12/13/2005

Bebbington Family Trust Dated May 7th 2003

WS Investment Company, LLC (2017A)

ALLAKOS INC.

2012 EQUITY INCENTIVE PLAN

(Amended and Restated May 17, 2017)

1. Purposes of the Plan. The purposes of this Plan are:

- to attract and retain the best available personnel for positions of substantial responsibility,
- to provide additional incentive to Employees, Directors and Consultants, and
- to promote the success of the Company's business.

The Plan permits the grant of Incentive Stock Options, Nonstatutory Stock Options, Stock Appreciation Rights, Restricted Stock and Restricted Stock Units.

2. Definitions. As used herein, the following definitions will apply:

(a) "Administrator" means the Board or any of its Committees as will be administering the Plan, in accordance with Section 4 of the Plan.

(b) "Applicable Laws" means the requirements relating to the administration of equity-based awards under U.S. state corporate laws, U.S. federal and state securities laws, the Code, any stock exchange or quotation system on which the Common Stock is listed or quoted and the applicable laws of any foreign country or jurisdiction where Awards are, or will be, granted under the Plan.

(c) "Award" means, individually or collectively, a grant under the Plan of Options, Stock Appreciation Rights, Restricted Stock, or Restricted Stock Units.

(d) "Award Agreement" means the written or electronic agreement setting forth the terms and provisions applicable to each Award granted under the Plan. The Award Agreement is subject to the terms and conditions of the Plan.

(e) "Board" means the Board of Directors of the Company.

(f) "Change in Control" means the occurrence of any of the following events:

(i) Change in Ownership of the Company. A change in the ownership of the Company which occurs on the date that any one person, or more than one person acting as a group ("Person"), acquires ownership of the stock of the Company that, together with the stock held by such Person, constitutes more than 50% of the total voting power of the stock of the Company, except that any change in the ownership of the stock of the Company as a result of a private financing of the Company that is approved by the Board will not be considered a Change in Control; or

(ii) Change in Effective Control of the Company. If the Company has a class of securities registered pursuant to Section 12 of the Exchange Act, a change in the effective control of the Company which occurs on the date that a majority of members of the Board is replaced during any twelve (12) month period by Directors whose appointment or election is not endorsed by a majority of the members of the Board prior to the date of the appointment or election. For purposes of this clause (ii), if any Person is considered to be in effective control of the Company, the acquisition of additional control of the Company by the same Person will not be considered a Change in Control; or

(iii) Change in Ownership of a Substantial Portion of the Company's Assets. A change in the ownership of a substantial portion of the Company's assets which occurs on the date that any Person acquires (or has acquired during the twelve (12) month period ending on the date of the most recent acquisition by such person or persons) assets from the Company that have a total gross fair market value equal to or more than 50% of the total gross fair market value of all of the assets of the Company immediately prior to such acquisition or acquisitions. For purposes of this subsection (iii), gross fair market value means the value of the assets of the Company, or the value of the assets being disposed of, determined without regard to any liabilities associated with such assets.

For purposes of this Section 2(f), persons will be considered to be acting as a group if they are owners of a corporation that enters into a merger, consolidation, purchase or acquisition of stock, or similar business transaction with the Company.

Notwithstanding the foregoing, a transaction will not be deemed a Change in Control unless the transaction qualifies as a change in control event within the meaning of Code Section 409A, as it has been and may be amended from time to time, and any proposed or final Treasury Regulations and Internal Revenue Service guidance that has been promulgated or may be promulgated thereunder from time to time.

Further and for the avoidance of doubt, a transaction will not constitute a Change in Control if: (i) its sole purpose is to change the jurisdiction of the Company's incorporation, or (ii) its sole purpose is to create a holding company that will be owned in substantially the same proportions by the persons who held the Company's securities immediately before such transaction.

(g) "Code" means the Internal Revenue Code of 1986, as amended. Any reference to a section of the Code herein will be a reference to any successor or amended section of the Code.

(h) "Committee" means a committee of Directors or of other individuals satisfying Applicable Laws appointed by the Board, or by the compensation committee of the Board, in accordance with Section 4 hereof.

(i) "Common Stock" means the common stock of the Company.

(j) "Company" means Allakos Inc., a Delaware corporation, or any successor thereto.

(k) Consultant" means any individual, including an advisor, engaged by the Company or a Parent or Subsidiary to render services to such entity. For the avoidance of doubt, the term "Consultant" shall not include any entity or any non-natural person.

(l) "Director" means a member of the Board.

(m) "Disability" means total and permanent disability as defined in Code Section 22(e)(3), provided that in the case of Awards other than Incentive Stock Options, the Administrator in its discretion may determine whether a permanent and total disability exists in accordance with uniform and non-discriminatory standards adopted by the Administrator from time to time.

(n) "Employee" means any person, including officers and Directors, employed by the Company or any Parent or Subsidiary of the Company. Neither service as a Director nor payment of a director's fee by the Company will be sufficient to constitute "employment" by the Company.

(o) "Exchange Act" means the Securities Exchange Act of 1934, as amended.

(p) "Exchange Program" means a program under which (i) outstanding Awards are surrendered or cancelled in exchange for Awards of the same type (which may have higher or lower exercise prices and different terms), Awards of a different type, and/or cash, (ii) Participants would have the opportunity to transfer any outstanding Awards to a financial institution or other person or entity selected by the Administrator, and/or (iii) the exercise price of an outstanding Award is reduced or increased. The Administrator will determine the terms and conditions of any Exchange Program in its sole discretion.

(q) "Fair Market Value" means, as of any date, the value of Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or a national market system, including without limitation the Nasdaq Global Select Market, the Nasdaq Global Market or the Nasdaq Capital Market of The Nasdaq Stock Market, its Fair Market Value will be the closing sales price for such stock (or the closing bid, if no sales were reported) as quoted on such exchange or system on the day of determination, as reported in *The Wall Street Journal* or such other source as the Administrator deems reliable;

(ii) If the Common Stock is regularly quoted by a recognized securities dealer but selling prices are not reported, the Fair Market Value of a Share will be the mean between the high bid and low asked prices for the Common Stock on the day of determination (or, if no bids and asks were reported on that date, as applicable, on the last trading date such bids and asks were reported), as reported in *The Wall Street Journal* or such other source as the Administrator deems reliable; or

(iii) In the absence of an established market for the Common Stock, the Fair Market Value will be determined in good faith by the Administrator.

(r) "Incentive Stock Option" means an Option that by its terms qualifies and is otherwise intended to qualify as an incentive stock option within the meaning of Code Section 422 and the regulations promulgated thereunder.

(s) "Nonstatutory Stock Option" means an Option that by its terms does not qualify or is not intended to qualify as an Incentive Stock Option.

(t) "Option" means a stock option granted pursuant to the Plan.

(u) "Parent" means a "parent corporation," whether now or hereafter existing, as defined in Code Section 424(e).

(v) "Participant" means the holder of an outstanding Award.

(w) "Period of Restriction" means the period during which the transfer of Shares of Restricted Stock are subject to restrictions and therefore, the Shares are subject to a substantial risk of forfeiture. Such restrictions may be based on the passage of time, the achievement of target levels of performance, or the occurrence of other events as determined by the Administrator.

(x) "Plan" means this 2012 Equity Incentive Plan.

(y) "Restricted Stock" means Shares issued pursuant to an Award of Restricted Stock under Section 8 of the Plan, or issued pursuant to the early exercise of an Option.

(z) "Restricted Stock Unit" means a bookkeeping entry representing an amount equal to the Fair Market Value of one Share, granted pursuant to Section 9. Each Restricted Stock Unit represents an unfunded and unsecured obligation of the Company.

(aa) "Service Provider" means an Employee, Director or Consultant.

(bb) "Share" means a share of the Common Stock, as adjusted in accordance with Section 13 of the Plan.

(cc) "Stock Appreciation Right" means an Award, granted alone or in connection with an Option, that pursuant to Section 7 is designated as a Stock Appreciation Right.

(dd) "Subsidiary" means a "subsidiary corporation," whether now or hereafter existing, as defined in Code Section 424(f).

3. Stock Subject to the Plan.

(a) Stock Subject to the Plan. Subject to the provisions of Section 13 of the Plan, the maximum aggregate number of Shares that may be subject to Awards and sold under the Plan is 10,568,807. The Shares may be authorized but unissued, or reacquired Common Stock.

(b) Lapsed Awards. If an Award expires or becomes unexercisable without having been exercised in full, is surrendered pursuant to an Exchange Program, or, with respect to Restricted Stock or Restricted Stock Units, is forfeited to or repurchased by the Company due to the failure to vest, the unpurchased Shares (or for Awards other than Options or Stock Appreciation Rights the forfeited or repurchased Shares) which were subject thereto will become available for future grant or sale under the Plan (unless the Plan has terminated). With respect to Stock Appreciation Rights, only Shares actually issued pursuant to a Stock Appreciation Right will cease to be available under the Plan; all remaining Shares under Stock Appreciation Rights will remain available for future grant or sale under the Plan (unless the Plan has terminated). Shares that have actually been issued under the Plan under any Award will not be returned to the Plan and will not become available for future distribution under the Plan; provided, however, that if Shares issued pursuant to Awards of Restricted Stock or Restricted Stock Units are repurchased by the Company or are forfeited to the Company due to the failure to vest, such Shares will become available for future grant under the Plan. Shares used to pay the exercise price of an Award or to satisfy the tax withholding obligations related to an Award will become available for future grant or sale under the Plan. To the extent an Award under the Plan is paid out in cash rather than Shares, such cash payment will not result in reducing the number of Shares available for issuance under the Plan. Notwithstanding the foregoing and, subject to adjustment as provided in Section 13, the maximum number of Shares that may be issued upon the exercise of Incentive Stock Options will equal the aggregate Share number stated in Section 3(a), plus, to the extent allowable under Code Section 422 and the Treasury Regulations promulgated thereunder, any Shares that become available for issuance under the Plan pursuant to Section 3(b).

(c) Share Reserve. The Company, during the term of this Plan, will at all times reserve and keep available such number of Shares as will be sufficient to satisfy the requirements of the Plan.

4. Administration of the Plan.

(a) Procedure.

(i) Multiple Administrative Bodies. Different Committees with respect to different groups of Service Providers may administer the Plan.

(ii) Other Administration. Other than as provided above, the Plan will be administered by (A) the Board or (B) a Committee, which Committee will be constituted to satisfy Applicable Laws.

(b) Powers of the Administrator. Subject to the provisions of the Plan, and in the case of a Committee, subject to the specific duties delegated by the Board to such Committee, the Administrator will have the authority, in its discretion:

(i) to determine the Fair Market Value;

(ii) to select the Service Providers to whom Awards may be granted hereunder;

(iii) to determine the number of Shares to be covered by each Award granted hereunder;

(iv) to approve forms of Award Agreements for use under the Plan;

(v) to determine the terms and conditions, not inconsistent with the terms of the Plan, of any Award granted hereunder. Such terms and conditions include, but are not limited to, the exercise price, the time or times when Awards may be exercised (which may be based on performance criteria), any vesting acceleration or waiver of forfeiture restrictions, and any restriction or limitation regarding any Award or the Shares relating thereto, based in each case on such factors as the Administrator will determine;

(vi) to institute and determine the terms and conditions of an Exchange Program;

(vii) to construe and interpret the terms of the Plan and Awards granted pursuant to the Plan;

(viii) to prescribe, amend and rescind rules and regulations relating to the Plan, including rules and regulations relating to sub-plans established for the purpose of satisfying applicable foreign laws or for qualifying for favorable tax treatment under applicable foreign laws;

(ix) to modify or amend each Award (subject to Section 18(c) of the Plan), including but not limited to the discretionary authority to extend the post-termination exercisability period of Awards and to extend the maximum term of an Option (subject to Section 6(d));

(x) to allow Participants to satisfy withholding tax obligations in a manner prescribed in Section 14;

(xi) to authorize any person to execute on behalf of the Company any instrument required to effect the grant of an Award previously granted by the Administrator;

(xii) to allow a Participant to defer the receipt of the payment of cash or the delivery of Shares that otherwise would be due to such Participant under an Award; and

(xiii) to make all other determinations deemed necessary or advisable for administering the Plan.

(c) Effect of Administrator's Decision. The Administrator's decisions, determinations and interpretations will be final and binding on all Participants and any other holders of Awards.

5. Eligibility. Nonstatutory Stock Options, Stock Appreciation Rights, Restricted Stock, and Restricted Stock Units may be granted to Service Providers. Incentive Stock Options may be granted only to Employees.

6. Stock Options.

(a) Grant of Options. Subject to the terms and provisions of the Plan, the Administrator, at any time and from time to time, may grant Options in such amounts as the Administrator, in its sole discretion, will determine.

(b) Option Agreement. Each Award of an Option will be evidenced by an Award Agreement that will specify the exercise price, the term of the Option, the number of Shares subject to the Option, the exercise restrictions, if any, applicable to the Option, and such other terms and conditions as the Administrator, in its sole discretion, will determine.

(c) Limitations. Each Option will be designated in the Award Agreement as either an Incentive Stock Option or a Nonstatutory Stock Option. Notwithstanding such designation, however, to the extent that the aggregate Fair Market Value of the Shares with respect to which Incentive Stock Options are exercisable for the first time by the Participant during any calendar year (under all plans of the Company and any Parent or Subsidiary) exceeds one hundred thousand dollars ($100,000), such Options will be treated as Nonstatutory Stock Options. For purposes of this Section 6(c), Incentive Stock Options will be taken into account in the order in which they were granted, the Fair Market Value of the Shares will be determined as of the time the Option with respect to such Shares is granted, and calculation will be performed in accordance with Code Section 422 and Treasury Regulations promulgated thereunder.

(d) Term of Option. The term of each Option will be stated in the Award Agreement; provided, however, that the term will be no more than ten (10) years from the date of grant thereof. In the case of an Incentive Stock Option granted to a Participant who, at the time the Incentive Stock Option is granted, owns stock representing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or any Parent or Subsidiary, the term of the Incentive Stock Option will be five (5) years from the date of grant or such shorter term as may be provided in the Award Agreement.

(e) Option Exercise Price and Consideration.

(i) Exercise Price. The per Share exercise price for the Shares to be issued pursuant to the exercise of an Option will be determined by the Administrator, but will be no less than one hundred percent (100%) of the Fair Market Value per Share on the date of grant. In addition, in the case of an Incentive Stock Option granted to an Employee who owns stock representing more than ten percent (10%) of the voting power of all classes of stock of the Company or any Parent or Subsidiary, the per Share exercise price will be no less than one hundred ten percent (110%) of the Fair Market Value per Share on the date of grant. Notwithstanding the foregoing provisions of this Section 6(e)(i), Options may be granted with a per Share exercise price of less than one hundred percent (100%) of the Fair Market Value per Share on the date of grant pursuant to a transaction described in, and in a manner consistent with, Code Section 424(a).

(ii) Waiting Period and Exercise Dates. At the time an Option is granted, the Administrator will fix the period within which the Option may be exercised and will determine any conditions that must be satisfied before the Option may be exercised.

(iii) Form of Consideration. The Administrator will determine the acceptable form of consideration for exercising an Option, including the method of payment. In the case of an Incentive Stock Option, the Administrator will determine the acceptable form of consideration at the time of grant. Such consideration may consist entirely of: (1) cash; (2) check; (3) promissory note, to the extent permitted by Applicable Laws, (4) other Shares, provided that such Shares have a Fair Market Value on the date of surrender equal to the aggregate exercise price of the Shares as to which such Option will be exercised and provided further that accepting such Shares will not result in any adverse accounting consequences to the Company, as the Administrator determines in its sole discretion; (5) consideration received by the Company under cashless exercise program (whether through a broker or otherwise) implemented by the Company in connection with the Plan; (6) by net exercise, (7) such other consideration and method of payment for the issuance of Shares to the extent permitted by Applicable Laws, or (8) any combination of the foregoing methods of payment. In making its determination as to the type of consideration to accept, the Administrator will consider if acceptance of such consideration may be reasonably expected to benefit the Company.

(f) Exercise of Option.

(i) Procedure for Exercise; Rights as a Stockholder. Any Option granted hereunder will be exercisable according to the terms of the Plan and at such times and under such conditions as determined by the Administrator and set forth in the Award Agreement. An Option may not be exercised for a fraction of a Share.

An Option will be deemed exercised when the Company receives: (i) notice of exercise (in such form as the Administrator may specify from time to time) from the person entitled to exercise the Option, and (ii) full payment for the Shares with respect to which the Option is exercised (together with applicable tax withholding). Full payment may consist of any consideration and method of payment authorized by the Administrator and permitted by the Award Agreement and the Plan. Shares issued upon exercise of an Option will be issued in the name of the Participant or, if requested by the Participant, in the name of the Participant and his or her spouse. Until the Shares are issued (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company), no right to vote or receive dividends or any other rights as a stockholder will exist with respect to the Shares subject to an Option, notwithstanding the exercise of the Option. The Company will issue (or cause to be issued) such Shares promptly after the Option is exercised. No adjustment will be made for a dividend or other right for which the record date is prior to the date the Shares are issued, except as provided in Section 13 of the Plan.

Exercising an Option in any manner will decrease the number of Shares thereafter available, both for purposes of the Plan and for sale under the Option, by the number of Shares as to which the Option is exercised.

(ii) Termination of Relationship as a Service Provider. If a Participant ceases to be a Service Provider, other than upon the Participant's termination as the result of the Participant's death or Disability, the Participant may exercise his or her Option within thirty (30) days of termination, or such longer period of time as is specified in the Award Agreement (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement) to the extent that the Option is vested on the date of termination. Unless otherwise provided by the

Administrator, if on the date of termination the Participant is not vested as to his or her entire Option, the Shares covered by the unvested portion of the Option will revert to the Plan. If after termination the Participant does not exercise his or her Option within the time specified by the Administrator, the Option will terminate, and the Shares covered by such Option will revert to the Plan.

(iii) Disability of Participant. If a Participant ceases to be a Service Provider as a result of the Participant's Disability, the Participant may exercise his or her Option within six (6) months of termination, or such longer period of time as is specified in the Award Agreement (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement) to the extent the Option is vested on the date of termination. Unless otherwise provided by the Administrator, if on the date of termination the Participant is not vested as to his or her entire Option, the Shares covered by the unvested portion of the Option will revert to the Plan. If after termination the Participant does not exercise his or her Option within the time specified herein, the Option will terminate, and the Shares covered by such Option will revert to the Plan.

(iv) Death of Participant. If a Participant dies while a Service Provider, the Option may be exercised within six (6) months following the Participant's death, or within such longer period of time as is specified in the Award Agreement (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement) to the extent that the Option is vested on the date of death, by the Participant's designated beneficiary, provided such beneficiary has been designated prior to the Participant's death in a form acceptable to the Administrator. If no such beneficiary has been designated by the Participant, then such Option may be exercised by the personal representative of the Participant's estate or by the person(s) to whom the Option is transferred pursuant to the Participant's will or in accordance with the laws of descent and distribution. Unless otherwise provided by the Administrator, if at the time of death Participant is not vested as to his or her entire Option, the Shares covered by the unvested portion of the Option will immediately revert to the Plan. If the Option is not so exercised within the time specified herein, the Option will terminate, and the Shares covered by such Option will revert to the Plan.

7. Stock Appreciation Rights.

(a) Grant of Stock Appreciation Rights. Subject to the terms and conditions of the Plan, a Stock Appreciation Right may be granted to Service Providers at any time and from time to time as will be determined by the Administrator, in its sole discretion.

(b) Number of Shares. The Administrator will have complete discretion to determine the number of Shares subject to any Award of Stock Appreciation Rights.

(c) Exercise Price and Other Terms. The per Share exercise price for the Shares that will determine the amount of the payment to be received upon exercise of a Stock Appreciation Right as set forth in Section 7(f) will be determined by the Administrator and will be no less than one hundred percent (100%) of the Fair Market Value per Share on the date of grant. Otherwise, the Administrator, subject to the provisions of the Plan, will have complete discretion to determine the terms and conditions of Stock Appreciation Rights granted under the Plan.

(d) Stock Appreciation Right Agreement. Each Stock Appreciation Right grant will be evidenced by an Award Agreement that will specify the exercise price, the term of the Stock Appreciation Right, the conditions of exercise, and such other terms and conditions as the Administrator, in its sole discretion, will determine.

(e) Expiration of Stock Appreciation Rights. A Stock Appreciation Right granted under the Plan will expire upon the date determined by the Administrator, in its sole discretion, and set forth in the Award Agreement. Notwithstanding the foregoing, the rules of Section 6(d) relating to the maximum term and Section 6(f) relating to exercise also will apply to Stock Appreciation Rights.

(f) Payment of Stock Appreciation Right Amount. Upon exercise of a Stock Appreciation Right, a Participant will be entitled to receive payment from the Company in an amount determined by multiplying:

(i) The difference between the Fair Market Value of a Share on the date of exercise over the exercise price; times

(ii) The number of Shares with respect to which the Stock Appreciation Right is exercised.

At the discretion of the Administrator, the payment upon Stock Appreciation Right exercise may be in cash, in Shares of equivalent value, or in some combination thereof.

8. Restricted Stock.

(a) Grant of Restricted Stock. Subject to the terms and provisions of the Plan, the Administrator, at any time and from time to time, may grant Shares of Restricted Stock to Service Providers in such amounts as the Administrator, in its sole discretion, will determine.

(b) Restricted Stock Agreement. Each Award of Restricted Stock will be evidenced by an Award Agreement that will specify the Period of Restriction, the number of Shares granted, and such other terms and conditions as the Administrator, in its sole discretion, will determine. Unless the Administrator determines otherwise, the Company as escrow agent will hold Shares of Restricted Stock until the restrictions on such Shares have lapsed.

(c) Transferability. Except as provided in this Section 8 or as the Administrator determines, Shares of Restricted Stock may not be sold, transferred, pledged, assigned, or otherwise alienated or hypothecated until the end of the applicable Period of Restriction.

(d) Other Restrictions. The Administrator, in its sole discretion, may impose such other restrictions on Shares of Restricted Stock as it may deem advisable or appropriate.

(e) Removal of Restrictions. Except as otherwise provided in this Section 8, Shares of Restricted Stock covered by each Restricted Stock grant made under the Plan will be released from escrow as soon as practicable after the last day of the Period of Restriction or at such other time as the Administrator may determine. The Administrator, in its discretion, may accelerate the time at which any restrictions will lapse or be removed.

(f) Voting Rights. During the Period of Restriction, Service Providers holding Shares of Restricted Stock granted hereunder may exercise full voting rights with respect to those Shares, unless the Administrator determines otherwise.

(g) Dividends and Other Distributions. During the Period of Restriction, Service Providers holding Shares of Restricted Stock will be entitled to receive all dividends and other distributions paid with respect to such Shares, unless the Administrator provides otherwise. If any such dividends or distributions are paid in Shares, the Shares will be subject to the same restrictions on transferability and forfeitability as the Shares of Restricted Stock with respect to which they were paid.

(h) Return of Restricted Stock to Company. On the date set forth in the Award Agreement, the Restricted Stock for which restrictions have not lapsed will revert to the Company and again will become available for grant under the Plan.

9. Restricted Stock Units.

(a) Grant. Restricted Stock Units may be granted at any time and from time to time as determined by the Administrator. After the Administrator determines that it will grant Restricted Stock Units, it will advise the Participant in an Award Agreement of the terms, conditions, and restrictions related to the grant, including the number of Restricted Stock Units.

(b) Vesting Criteria and Other Terms. The Administrator will set vesting criteria in its discretion, which, depending on the extent to which the criteria are met, will determine the number of Restricted Stock Units that will be paid out to the Participant. The Administrator may set vesting criteria based upon the achievement of Company-wide, business unit, or individual goals (including, but not limited to, continued employment or service), or any other basis determined by the Administrator in its discretion.

(c) Earning Restricted Stock Units. Upon meeting the applicable vesting criteria, the Participant will be entitled to receive a payout as determined by the Administrator. Notwithstanding the foregoing, at any time after the grant of Restricted Stock Units, the Administrator, in its sole discretion, may reduce or waive any vesting criteria that must be met to receive a payout.

(d) Form and Timing of Payment. Payment of earned Restricted Stock Units will be made as soon as practicable after the date(s) determined by the Administrator and set forth in the Award Agreement. The Administrator, in its sole discretion, may settle earned Restricted Stock Units in cash, Shares, or a combination of both.

(e) Cancellation. On the date set forth in the Award Agreement, all unearned Restricted Stock Units will be forfeited to the Company.

10. Compliance With Code Section 409A. Awards will be designed and operated in such a manner that they are either exempt from the application of, or comply with, the requirements of Code Section 409A, except as otherwise determined in the sole discretion of the Administrator. The Plan and each Award Agreement under the Plan is intended to meet the requirements of Code Section 409A and will be construed and interpreted in accordance with such intent, except as

otherwise determined in the sole discretion of the Administrator. To the extent that an Award or payment, or the settlement or deferral thereof, is subject to Code Section 409A the Award will be granted, paid, settled or deferred in a manner that will meet the requirements of Code Section 409A, such that the grant, payment, settlement or deferral will not be subject to the additional tax or interest applicable under Code Section 409A.

11. Leaves of Absence/Transfer Between Locations. Unless the Administrator provides otherwise, vesting of Awards granted hereunder will be suspended during any unpaid leave of absence. A Participant will not cease to be an Employee in the case of (i) any leave of absence approved by the Company or (ii) transfers between locations of the Company or between the Company, its Parent, or any Subsidiary. For purposes of Incentive Stock Options, no such leave may exceed three (3) months, unless reemployment upon expiration of such leave is guaranteed by statute or contract. If reemployment upon expiration of a leave of absence approved by the Company is not so guaranteed, then six (6) months following the first (1st) day of such leave, any Incentive Stock Option held by the Participant will cease to be treated as an Incentive Stock Option and will be treated for tax purposes as a Nonstatutory Stock Option.

12. Limited Transferability of Awards.

(a) Unless determined otherwise by the Administrator, Awards may not be sold, pledged, assigned, hypothecated, or otherwise transferred in any manner other than by will or by the laws of descent and distribution, and may be exercised, during the lifetime of the Participant, only by the Participant. If the Administrator makes an Award transferable, such Award may only be transferred (i) by will, (ii) by the laws of descent and distribution, or (iii) as permitted by Rule 701 of the Securities Act of 1933, as amended (the "Securities Act").

(b) Further, until the Company becomes subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act, or after the Administrator determines that it is, will, or may no longer be relying upon the exemption from registration under the Exchange Act as set forth in Rule 12h-1(f) promulgated under the Exchange Act, an Option, or prior to exercise, the Shares subject to the Option, may not be pledged, hypothecated or otherwise transferred or disposed of, in any manner, including by entering into any short position, any "put equivalent position" or any "call equivalent position" (as defined in Rule 16a-1(h) and Rule 16a-1(b) of the Exchange Act, respectively), other than to (i) persons who are "family members" (as defined in Rule 701(c)(3) of the Securities Act) through gifts or domestic relations orders, or (ii) to an executor or guardian of the Participant upon the death or disability of the Participant. Notwithstanding the foregoing sentence, the Administrator, in its sole discretion, may determine to permit transfers to the Company or in connection with a Change in Control or other acquisition transactions involving the Company to the extent permitted by Rule 12h-1(f).

13. Adjustments; Dissolution or Liquidation; Merger or Change in Control.

(a) Adjustments. In the event that any dividend or other distribution (whether in the form of cash, Shares, other securities, or other property), recapitalization, stock split, reverse stock split, reorganization, merger, consolidation, split-up, spin-off, combination, repurchase, or exchange of Shares or other securities of the Company, or other change in the corporate structure of the Company affecting the Shares occurs, the Administrator, in order to prevent diminution or

enlargement of the benefits or potential benefits intended to be made available under the Plan, will adjust the number and class of shares of stock that may be delivered under the Plan and/or the number, class, and price of shares of stock covered by each outstanding Award; provided, however, that the Administrator will make such adjustments to an Award required by Section 25102(o) of the California Corporations Code to the extent the Company is relying upon the exemption afforded thereby with respect to the Award.

(b) Dissolution or Liquidation. In the event of the proposed dissolution or liquidation of the Company, the Administrator will notify each Participant as soon as practicable prior to the effective date of such proposed transaction. To the extent it has not been previously exercised, an Award will terminate immediately prior to the consummation of such proposed action.

(c) Merger or Change in Control. In the event of a merger of the Company with or into another corporation or other entity or a Change in Control, each outstanding Award will be treated as the Administrator determines (subject to the provisions of the following paragraph) without a Participant's consent, including, without limitation, that (i) Awards will be assumed, or substantially equivalent Awards will be substituted, by the acquiring or succeeding corporation (or an affiliate thereof) with appropriate adjustments as to the number and kind of shares and prices; (ii) upon written notice to a Participant, that the Participant's Awards will terminate upon or immediately prior to the consummation of such merger or Change in Control; (iii) outstanding Awards will vest and become exercisable, realizable, or payable, or restrictions applicable to an Award will lapse, in whole or in part prior to or upon consummation of such merger or Change in Control, and, to the extent the Administrator determines, terminate upon or immediately prior to the effectiveness of such merger or Change in Control; (iv) (A) the termination of an Award in exchange for an amount of cash and/or property, if any, equal to the amount that would have been attained upon the exercise of such Award or realization of the Participant's rights as of the date of the occurrence of the transaction (and, for the avoidance of doubt, if as of the date of the occurrence of the transaction the Administrator determines in good faith that no amount would have been attained upon the exercise of such Award or realization of the Participant's rights, then such Award may be terminated by the Company without payment), or (B) the replacement of such Award with other rights or property selected by the Administrator in its sole discretion; or (v) any combination of the foregoing. In taking any of the actions permitted under this subsection 13(c), the Administrator will not be obligated to treat all Awards, all Awards held by a Participant, or all Awards of the same type, similarly.

In the event that the successor corporation does not assume or substitute for the Award (or portion thereof), the Participant will fully vest in and have the right to exercise all of his or her outstanding Options and Stock Appreciation Rights, including Shares as to which such Awards would not otherwise be vested or exercisable, all restrictions on Restricted Stock and Restricted Stock Units will lapse, and, with respect to Awards with performance-based vesting, all performance goals or other vesting criteria will be deemed achieved at one hundred percent (100%) of target levels and all other terms and conditions met. In addition, if an Option or Stock Appreciation Right is not assumed or substituted in the event of a merger or Change in Control, the Administrator will notify the Participant in writing or electronically that the Option or Stock Appreciation Right will be exercisable for a period of time determined by the Administrator in its sole discretion, and the Option or Stock Appreciation Right will terminate upon the expiration of such period.

For the purposes of this subsection 13(c), an Award will be considered assumed if, following the merger or Change in Control, the Award confers the right to purchase or receive, for each Share subject to the Award immediately prior to the merger or Change in Control, the consideration (whether stock, cash, or other securities or property) received in the merger or Change in Control by holders of Common Stock for each Share held on the effective date of the transaction (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding Shares); provided, however, that if such consideration received in the merger or Change in Control is not solely common stock of the successor corporation or its Parent, the Administrator may, with the consent of the successor corporation, provide for the consideration to be received upon the exercise of an Option or Stock Appreciation Right or upon the payout of a Restricted Stock Unit, for each Share subject to such Award, to be solely common stock of the successor corporation or its Parent equal in fair market value to the per share consideration received by holders of Common Stock in the merger or Change in Control.

Notwithstanding anything in this Section 13(c) to the contrary, an Award that vests, is earned or paid-out upon the satisfaction of one or more performance goals will not be considered assumed if the Company or its successor modifies any of such performance goals without the Participant's consent; provided, however, a modification to such performance goals only to reflect the successor corporation's post-Change in Control corporate structure will not be deemed to invalidate an otherwise valid Award assumption.

Notwithstanding anything in this Section 13(c) to the contrary, if a payment under an Award Agreement is subject to Code Section 409A and if the change in control definition contained in the Award Agreement does not comply with the definition of "change of control" for purposes of a distribution under Code Section 409A, then any payment of an amount that is otherwise accelerated under this Section will be delayed until the earliest time that such payment would be permissible under Code Section 409A without triggering any penalties applicable under Code Section 409A.

14. Tax Withholding.

(a) Withholding Requirements. Prior to the delivery of any Shares or cash pursuant to an Award (or exercise thereof), the Company will have the power and the right to deduct or withhold, or require a Participant to remit to the Company, an amount sufficient to satisfy federal, state, local, foreign or other taxes (including the Participant's FICA obligation) required to be withheld with respect to such Award (or exercise thereof).

(b) Withholding Arrangements. The Administrator, in its sole discretion and pursuant to such procedures as it may specify from time to time, may permit a Participant to satisfy such tax withholding obligation, in whole or in part by (without limitation) (i) paying cash, (ii) electing to have the Company withhold otherwise deliverable Shares having a Fair Market Value equal to the minimum statutory amount required to be withheld, (iii) delivering to the Company already-owned Shares having a Fair Market Value equal to the statutory amount required to be withheld, provided the delivery of such Shares will not result in any adverse accounting consequences, as the Administrator determines in its sole discretion, or (iv) selling a sufficient number of Shares otherwise deliverable to the Participant through such means as the Administrator may determine in its sole discretion (whether through a broker or otherwise) equal to the amount

required to be withheld. The amount of the withholding requirement will be deemed to include any amount which the Administrator agrees may be withheld at the time the election is made, not to exceed the amount determined by using the maximum federal, state or local marginal income tax rates applicable to the Participant with respect to the Award on the date that the amount of tax to be withheld is to be determined. The Fair Market Value of the Shares to be withheld or delivered will be determined as of the date that the taxes are required to be withheld.

15. No Effect on Employment or Service. Neither the Plan nor any Award will confer upon a Participant any right with respect to continuing the Participant's relationship as a Service Provider with the Company, nor will they interfere in any way with the Participant's right or the Company's right to terminate such relationship at any time, with or without cause, to the extent permitted by Applicable Laws.

16. Date of Grant. The date of grant of an Award will be, for all purposes, the date on which the Administrator makes the determination granting such Award, or such other later date as is determined by the Administrator. Notice of the determination will be provided to each Participant within a reasonable time after the date of such grant.

17. Term of Plan. Subject to Section 21 of the Plan, the Plan will become effective upon its adoption by the Board. Unless sooner terminated under Section 18, it will continue in effect for a term of ten (10) years from the later of (a) the effective date of the Plan, or (b) the earlier of the most recent Board or stockholder approval of an increase in the number of Shares reserved for issuance under the Plan.

18. Amendment and Termination of the Plan.

(a) Amendment and Termination. The Board may at any time amend, alter, suspend or terminate the Plan.

(b) Stockholder Approval. The Company will obtain stockholder approval of any Plan amendment to the extent necessary and desirable to comply with Applicable Laws.

(c) Effect of Amendment or Termination. No amendment, alteration, suspension or termination of the Plan will impair the rights of any Participant, unless mutually agreed otherwise between the Participant and the Administrator, which agreement must be in writing and signed by the Participant and the Company. Termination of the Plan will not affect the Administrator's ability to exercise the powers granted to it hereunder with respect to Awards granted under the Plan prior to the date of such termination.

19. Conditions Upon Issuance of Shares.

(a) Legal Compliance. Shares will not be issued pursuant to the exercise of an Award unless the exercise of such Award and the issuance and delivery of such Shares will comply with Applicable Laws and will be further subject to the approval of counsel for the Company with respect to such compliance.

(b) Investment Representations. As a condition to the exercise of an Award, the Company may require the person exercising such Award to represent and warrant at the time of any such exercise that the Shares are being purchased only for investment and without any present intention to sell or distribute such Shares if, in the opinion of counsel for the Company, such a representation is required.

20. Inability to Obtain Authority. The inability of the Company to obtain authority from any regulatory body having jurisdiction, which authority is deemed by the Company's counsel to be necessary to the lawful issuance and sale of any Shares hereunder, will relieve the Company of any liability in respect of the failure to issue or sell such Shares as to which such requisite authority will not have been obtained.

21. Stockholder Approval. The Plan will be subject to approval by the stockholders of the Company within twelve (12) months after the date the Plan is adopted by the Board. Such stockholder approval will be obtained in the manner and to the degree required under Applicable Laws.

22. Information to Participants. Beginning on the earlier of (i) the date that the aggregate number of Participants under this Plan is five hundred (500) or more and the Company is relying on the exemption provided by Rule 12h-1(f)(1) under the Exchange Act and (ii) the date that the Company is required to deliver information to Participants pursuant to Rule 701 under the Securities Act, and until such time as the Company becomes subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act, is no longer relying on the exemption provided by Rule 12h-1(f)(1) under the Exchange Act or is no longer required to deliver information to Participants pursuant to Rule 701 under the Securities Act, the Company shall provide to each Participant the information described in paragraphs (e)(3), (4), and (5) of Rule 701 under the Securities Act not less frequently than every six (6) months with the financial statements being not more than 180 days old and with such information provided either by physical or electronic delivery to the Participants or by written notice to the Participants of the availability of the information on an Internet site that may be password-protected and of any password needed to access the information. The Company may request that Participants agree to keep the information to be provided pursuant to this section confidential. If a Participant does not agree to keep the information to be provided pursuant to this section confidential, then the Company will not be required to provide the information unless otherwise required pursuant to Rule 12h-1(f)(1) under the Exchange Act or Rule 701 of the Securities Act.

ALLAKOS INC.

2012 EQUITY INCENTIVE PLAN

STOCK OPTION AGREEMENT

Unless otherwise defined herein, the terms defined in the 2012 Equity Incentive Plan (the "Plan") shall have the same defined meanings in this Stock Option Agreement (the "Option Agreement").

I. NOTICE OF STOCK OPTION GRANT

Name:

Address:

The undersigned Participant has been granted an Option to purchase Common Stock of the Company, subject to the terms and conditions of the Plan and this Option Agreement, as follows:

Date of Grant:	_____
Vesting Commencement Date:	_____
Exercise Price per Share:	_____
Total Number of Shares Granted:	_____
Total Exercise Price:	_____
Type of Option:	_____ Incentive Stock Option (ISO)
	_____ Nonstatutory Stock Option (NSO)
Term/Expiration Date:	_____

Vesting Schedule:

This Option shall be exercisable, in whole or in part, according to the following vesting schedule:

Twenty-five percent (25%) of the Shares subject to the Option shall vest on the one (1) year anniversary of the Vesting Commencement Date, and one forty-eighth (1/48th) of the Shares subject to the Option shall vest each month thereafter on the same day of the month as the Vesting Commencement Date (and if there is no corresponding day, on the last day of the month), subject to Participant continuing to be a Service Provider through each such date.

Termination Period:

This Option shall be exercisable for three (3) months after Participant ceases to be a Service Provider, unless such termination is due to Participant's death or Disability, in which case this Option shall be exercisable for twelve (12) months after Participant ceases to be a Service Provider. Notwithstanding the foregoing sentence, in no event may this Option be exercised after the Term/Expiration Date as provided above and this Option may be subject to earlier termination as provided in Section 13 of the Plan.

II. AGREEMENT

1. Grant of Option. The Administrator of the Company hereby grants to the Participant named in the Notice of Stock Option Grant in Part I of this Agreement ("Participant"), an option (the "Option") to purchase the number of Shares set forth in the Notice of Stock Option Grant, at the exercise price per Share set forth in the Notice of Stock Option Grant (the "Exercise Price"), and subject to the terms and conditions of the Plan, which is incorporated herein by reference. Subject to Section 18 of the Plan, in the event of a conflict between the terms and conditions of the Plan and this Option Agreement, the terms and conditions of the Plan shall prevail.

If designated in the Notice of Stock Option Grant as an Incentive Stock Option ("ISO"), this Option is intended to qualify as an Incentive Stock Option as defined in Section 422 of the Code. Nevertheless, to the extent that it exceeds the $100,000 rule of Code Section 422(d), this Option shall be treated as a Nonstatutory Stock Option ("NSO"). Further, if for any reason this Option (or portion thereof) shall not qualify as an ISO, then, to the extent of such nonqualification, such Option (or portion thereof) shall be regarded as a NSO granted under the Plan. In no event shall the Administrator, the Company or any Parent or Subsidiary or any of their respective employees or directors have any liability to Participant (or any other person) due to the failure of the Option to qualify for any reason as an ISO.

2. Exercise of Option.

(a) Right to Exercise. This Option shall be exercisable during its term in accordance with the Vesting Schedule set out in the Notice of Stock Option Grant and with the applicable provisions of the Plan and this Option Agreement.

(b) Method of Exercise. This Option shall be exercisable by delivery of an exercise notice in the form attached as Exhibit A (the "Exercise Notice") or in a manner and pursuant to such procedures as the Administrator may determine, which shall state the election to exercise the Option, the number of Shares with respect to which the Option is being exercised (the "Exercised Shares"), and such other representations and agreements as may be required by the Company. The Exercise Notice shall be accompanied by payment of the aggregate Exercise Price as to all Exercised Shares, together with any applicable tax withholding. This Option shall be deemed to be exercised upon receipt by the Company of such fully executed Exercise Notice accompanied by the aggregate Exercise Price, together with any applicable tax withholding.

No Shares shall be issued pursuant to the exercise of an Option unless such issuance and such exercise comply with Applicable Laws. Assuming such compliance, for income tax purposes the Shares shall be considered transferred to Participant on the date on which the Option is exercised with respect to such Shares.

3. Participant's Representations. In the event the Shares have not been registered under the Securities Act of 1933, as amended (the "Securities Act"), at the time this Option is exercised, Participant shall, if required by the Company, concurrently with the exercise of all or any portion of this Option, deliver to the Company his or her Investment Representation Statement in the form attached hereto as Exhibit B.

4. Lock-Up Period. Participant hereby agrees that Participant shall not offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any Common Stock (or other securities) of the Company or enter into any swap, hedging or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of any Common Stock (or other securities) of the Company held by Participant (other than those included in the registration) for a period specified by the representative of the underwriters of Common Stock (or other securities) of the Company not to exceed one hundred and eighty (180) days following the effective date of any registration statement of the Company filed under the Securities Act (or such other period as may be requested by the Company or the underwriters to accommodate regulatory restrictions on (i) the publication or other distribution of research reports and (ii) analyst recommendations and opinions, including, but not limited to, the restrictions contained in NASD Rule 2711(f)(4) or NYSE Rule 472(f)(4), or any successor provisions or amendments thereto).

Participant agrees to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriter which are consistent with the foregoing or which are necessary to give further effect thereto. In addition, if requested by the Company or the representative of the underwriters of Common Stock (or other securities) of the Company, Participant shall provide, within ten (10) days of such request, such information as may be required by the Company or such representative in connection with the completion of any public offering of the Company's securities pursuant to a registration statement filed under the Securities Act. The obligations described in this Section 4 shall not apply to a registration relating solely to employee benefit plans on Form S-1 or Form S-8 or similar forms that may be promulgated in the future, or a registration relating solely to a Commission Rule 145 transaction on Form S-4 or similar forms that may be promulgated in the future. The Company may impose stop-transfer instructions with respect to the shares of Common Stock (or other securities) subject to the foregoing restriction until the end of said one hundred and eighty (180) day (or other) period. Participant agrees that any transferee of the Option or shares acquired pursuant to the Option shall be bound by this Section 4.

5. Method of Payment. Payment of the aggregate Exercise Price shall be by any of the following, or a combination thereof, at the election of the Participant:

(a) cash;

(b) check;

(c) consideration received by the Company under a formal cashless exercise program adopted by the Company in connection with the Plan; or

(d) surrender of other Shares which (i) shall be valued at its Fair Market Value on the date of exercise, and (ii) must be owned free and clear of any liens, claims, encumbrances or security interests, if accepting such Shares, in the sole discretion of the Administrator, shall not result in any adverse accounting consequences to the Company.

6. Restrictions on Exercise. This Option may not be exercised until such time as the Plan has been approved by the stockholders of the Company, or if the issuance of such Shares upon such exercise or the method of payment of consideration for such shares would constitute a violation of any Applicable Law.

7. Non-Transferability of Option.

(a) This Option may not be transferred in any manner otherwise than by will or by the laws of descent or distribution and may be exercised during the lifetime of Participant only by Participant. The terms of the Plan and this Option Agreement shall be binding upon the executors, administrators, heirs, successors and assigns of Participant.

(b) Further, until the Company becomes subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act, or after the Administrator determines that it is, will, or may no longer be relying upon the exemption from registration of Options under the Exchange Act as set forth in Rule 12h-1(f) promulgated under the Exchange Act (the "Reliance End Date"), Participant shall not transfer this Option or, prior to exercise, the Shares subject to this Option, in any manner other than (i) to persons who are "family members" (as defined in Rule 701(c)(3) of the Securities Act) through gifts or domestic relations orders, or (ii) to an executor or guardian of Participant upon the death or disability of Participant. Until the Reliance End Date, the Options and, prior to exercise, the Shares subject to this Option, may not be pledged, hypothecated or otherwise transferred or disposed of, including by entering into any short position, any "put equivalent position" or any "call equivalent position" (as defined in Rule 16a-1(h) and Rule 16a-1(b) of the Exchange Act, respectively), other than as permitted in clauses (i) and (ii) of this paragraph.

8. Term of Option. This Option may be exercised only within the term set out in the Notice of Stock Option Grant, and may be exercised during such term only in accordance with the Plan and the terms of this Option Agreement.

9. Tax Obligations.

(a) Tax Withholding. Participant agrees to make appropriate arrangements with the Company (or the Parent or Subsidiary employing or retaining Participant) for the satisfaction of all Federal, state, local and foreign income and employment tax withholding requirements applicable to the Option exercise. Participant acknowledges and agrees that the Company may refuse to honor the exercise and refuse to deliver the Shares if such withholding amounts are not delivered at the time of exercise.

(b) Notice of Disqualifying Disposition of ISO Shares. If the Option granted to Participant herein is an ISO, and if Participant sells or otherwise disposes of any of the Shares acquired pursuant to the ISO on or before the later of (i) the date two (2) years after the Date of Grant, or (ii) the date one (1) year after the date of exercise, Participant shall immediately notify the Company in writing of such disposition. Participant agrees that Participant may be subject to income tax withholding by the Company on the compensation income recognized by Participant.

(c) Code Section 409A. Under Code Section 409A, an Option that vests after December 31, 2004 (or that vested on or prior to such date but which was materially modified after October 3, 2004) that was granted with a per Share exercise price that is determined by the Internal Revenue Service (the "IRS") to be less than the Fair Market Value of a Share on the date of grant (a "discount option") may be considered "deferred compensation." An Option that is a "discount option" may result in (i) income recognition by Participant prior to the exercise of the Option, (ii) an additional twenty percent (20%) federal income tax, and (iii) potential penalty and interest charges. The "discount option" may also result in additional state income, penalty and interest tax to the Participant. Participant acknowledges that the Company cannot and has not guaranteed that the IRS will agree that the per Share exercise price of this Option equals or exceeds the Fair Market Value of a Share on the date of grant in a later examination. Participant agrees that if the IRS determines that the Option was granted with a per Share exercise price that was less than the Fair Market Value of a Share on the date of grant, Participant shall be solely responsible for Participant's costs related to such a determination.

10. Entire Agreement; Governing Law. The Plan is incorporated herein by reference. The Plan and this Option Agreement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof, and may not be modified adversely to the Participant's interest except by means of a writing signed by the Company and Participant. This Option Agreement is governed by the internal substantive laws but not the choice of law rules of California.

11. No Guarantee of Continued Service. PARTICIPANT ACKNOWLEDGES AND AGREES THAT THE VESTING OF SHARES PURSUANT TO THE VESTING SCHEDULE HEREOF IS EARNED ONLY BY CONTINUING AS A SERVICE PROVIDER AT THE WILL OF THE COMPANY (OR THE PARENT OR SUBSIDIARY EMPLOYING OR RETAINING PARTICIPANT) AND NOT THROUGH THE ACT OF BEING HIRED, BEING GRANTED THIS OPTION OR ACQUIRING SHARES HEREUNDER. PARTICIPANT FURTHER ACKNOWLEDGES AND AGREES THAT THIS AGREEMENT, THE TRANSACTIONS

CONTEMPLATED HEREUNDER AND THE VESTING SCHEDULE SET FORTH HEREIN DO NOT CONSTITUTE AN EXPRESS OR IMPLIED PROMISE OF CONTINUED ENGAGEMENT AS A SERVICE PROVIDER FOR THE VESTING PERIOD, FOR ANY PERIOD, OR AT ALL, AND SHALL NOT INTERFERE IN ANY WAY WITH PARTICIPANT'S RIGHT OR THE RIGHT OF THE COMPANY (OR THE PARENT OR SUBSIDIARY EMPLOYING OR RETAINING PARTICIPANT) TO TERMINATE PARTICIPANT'S RELATIONSHIP AS A SERVICE PROVIDER AT ANY TIME, WITH OR WITHOUT CAUSE.

Participant acknowledges receipt of a copy of the Plan and represents that he or she is familiar with the terms and provisions thereof, and hereby accepts this Option subject to all of the terms and provisions thereof. Participant has reviewed the Plan and this Option in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Option and fully understands all provisions of the Option. Participant hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Administrator upon any questions arising under the Plan or this Option. Participant further agrees to notify the Company upon any change in the residence address indicated below.

PARTICIPANT	**ALLAKOS INC.**
Signature	By
Print Name	Print Name
	Title
Residence Address	
Date	

EXHIBIT A

2012 EQUITY INCENTIVE PLAN

EXERCISE NOTICE

Allakos Inc.
75 Shoreway Road
San Carlos, CA 94070

Attention: Secretary

1. Exercise of Option. Effective as of today, , , the undersigned ("Participant") hereby elects to exercise Participant's option (the "Option") to purchase shares of the Common Stock (the "Shares") of Allakos Inc. (the "Company") under and pursuant to the 2012 Equity Incentive Plan (the "Plan") and the Stock Option Agreement dated (the "Option Agreement").

2. Delivery of Payment. Participant herewith delivers to the Company the full purchase price of the Shares, as set forth in the Option Agreement, and any and all withholding taxes due in connection with the exercise of the Option.

3. Representations of Participant. Participant acknowledges that Participant has received, read and understood the Plan and the Option Agreement and agrees to abide by and be bound by their terms and conditions.

4. Rights as Stockholder. Until the issuance of the Shares (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company), no right to vote or receive dividends or any other rights as a stockholder shall exist with respect to the Common Stock subject to an Award, notwithstanding the exercise of the Option. The Shares shall be issued to Participant as soon as practicable after the Option is exercised in accordance with the Option Agreement. No adjustment shall be made for a dividend or other right for which the record date is prior to the date of issuance except as provided in Section 13 of the Plan.

5. Company's Right of First Refusal. Before any Shares held by Participant or any transferee (either being sometimes referred to herein as the "Holder") may be sold or otherwise transferred (including transfer by gift or operation of law), the Company or its assignee(s) shall have a right of first refusal to purchase the Shares on the terms and conditions set forth in this Section 5 (the "Right of First Refusal").

(a) Notice of Proposed Transfer. The Holder of the Shares shall deliver to the Company a written notice (the "Notice") stating: (i) the Holder's bona fide intention to sell or otherwise transfer such Shares; (ii) the name of each proposed purchaser or other transferee ("Proposed Transferee"); (iii) the number of Shares to be transferred to each Proposed Transferee; and (iv) the bona fide cash price or other consideration for which the Holder proposes to transfer the Shares (the "Offered Price"), and the Holder shall offer the Shares at the Offered Price to the Company or its assignee(s).

(b) Exercise of Right of First Refusal. At any time within thirty (30) days after receipt of the Notice, the Company and/or its assignee(s) may, by giving written notice to the Holder, elect to purchase all, but not less than all, of the Shares proposed to be transferred to any one or more of the Proposed Transferees, at the purchase price determined in accordance with subsection (c) below.

(c) Purchase Price. The purchase price ("Purchase Price") for the Shares purchased by the Company or its assignee(s) under this Section 5 shall be the Offered Price. If the Offered Price includes consideration other than cash, the cash equivalent value of the non-cash consideration shall be determined by the Board of Directors of the Company in good faith.

(d) Payment. Payment of the Purchase Price shall be made, at the option of the Company or its assignee(s), in cash (by check), by cancellation of all or a portion of any outstanding indebtedness of the Holder to the Company (or, in the case of repurchase by an assignee, to the assignee), or by any combination thereof within thirty (30) days after receipt of the Notice or in the manner and at the times set forth in the Notice.

(e) Holder's Right to Transfer. If all of the Shares proposed in the Notice to be transferred to a given Proposed Transferee are not purchased by the Company and/or its assignee(s) as provided in this Section 5, then the Holder may sell or otherwise transfer such Shares to that Proposed Transferee at the Offered Price or at a higher price, *provided* that such sale or other transfer is consummated within one hundred and twenty (120) days after the date of the Notice, that any such sale or other transfer is effected in accordance with any applicable securities laws and that the Proposed Transferee agrees in writing that the provisions of this Section 5 shall continue to apply to the Shares in the hands of such Proposed Transferee. If the Shares described in the Notice are not transferred to the Proposed Transferee within such period, a new Notice shall be given to the Company, and the Company and/or its assignees shall again be offered the Right of First Refusal before any Shares held by the Holder may be sold or otherwise transferred.

(f) Exception for Certain Family Transfers. Anything to the contrary contained in this Section 5 notwithstanding, the transfer of any or all of the Shares during the Participant's lifetime or on the Participant's death by will or intestacy to the Participant's immediate family or a trust for the benefit of the Participant's immediate family shall be exempt from the provisions of this Section 5. "Immediate Family" as used herein shall mean spouse, lineal descendant or antecedent, father, mother, brother or sister. In such case, the transferee or other recipient shall receive and hold the Shares so transferred subject to the provisions of this Section 5, and there shall be no further transfer of such Shares except in accordance with the terms of this Section 5.

(g) Termination of Right of First Refusal. The Right of First Refusal shall terminate as to any Shares upon the earlier of (i) the first sale of Common Stock of the Company to the general public, or (ii) a Change in Control in which the successor corporation has equity securities that are publicly traded.

6. Tax Consultation. Participant understands that Participant may suffer adverse tax consequences as a result of Participant's purchase or disposition of the Shares. Participant represents that Participant has consulted with any tax consultants Participant deems advisable in connection with the purchase or disposition of the Shares and that Participant is not relying on the Company for any tax advice.

7. Restrictive Legends and Stop-Transfer Orders.

(a) Legends. Participant understands and agrees that the Company shall cause the legends set forth below or legends substantially equivalent thereto, to be placed upon any certificate(s) evidencing ownership of the Shares together with any other legends that may be required by the Company or by state or federal securities laws:

THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 (THE "ACT") AND MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED UNLESS AND UNTIL REGISTERED UNDER THE ACT OR, IN THE OPINION OF COUNSEL SATISFACTORY TO THE ISSUER OF THESE SECURITIES, SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION IS IN COMPLIANCE THEREWITH.

THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO CERTAIN RESTRICTIONS ON TRANSFER AND A RIGHT OF FIRST REFUSAL HELD BY THE ISSUER OR ITS ASSIGNEE(S) AS SET FORTH IN THE EXERCISE NOTICE BETWEEN THE ISSUER AND THE ORIGINAL HOLDER OF THESE SHARES, A COPY OF WHICH MAY BE OBTAINED AT THE PRINCIPAL OFFICE OF THE ISSUER. SUCH TRANSFER RESTRICTIONS AND RIGHT OF FIRST REFUSAL ARE BINDING ON TRANSFEREES OF THESE SHARES.

THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO RESTRICTIONS ON TRANSFER FOR A PERIOD OF TIME FOLLOWING THE EFFECTIVE DATE OF THE UNDERWRITTEN PUBLIC OFFERING OF THE COMPANY'S SECURITIES SET FORTH IN AN AGREEMENT BETWEEN THE ISSUER AND THE ORIGINAL HOLDER OF THESE SHARES AND MAY NOT BE SOLD OR OTHERWISE DISPOSED OF BY THE HOLDER PRIOR TO THE EXPIRATION OF SUCH PERIOD WITHOUT THE CONSENT OF THE COMPANY OR THE MANAGING UNDERWRITER.

(b) Stop-Transfer Notices. Participant agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) Refusal to Transfer. The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Exercise Notice or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

8. Successors and Assigns. The Company may assign any of its rights under this Exercise Notice to single or multiple assignees, and this Exercise Notice shall inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer herein set forth, this Exercise Notice shall be binding upon Participant and his or her heirs, executors, administrators, successors and assigns.

9. Interpretation. Any dispute regarding the interpretation of this Exercise Notice shall be submitted by Participant or by the Company forthwith to the Administrator, which shall review such dispute at its next regular meeting. The resolution of such a dispute by the Administrator shall be final and binding on all parties.

10. Governing Law; Severability. This Exercise Notice is governed by the internal substantive laws, but not the choice of law rules, of California. In the event that any provision hereof becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, this Exercise Notice shall continue in full force and effect.

11. Entire Agreement. The Plan and Option Agreement are incorporated herein by reference. This Exercise Notice, the Plan, the Option Agreement and the Investment Representation Statement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof, and may not be modified adversely to the Participant's interest except by means of a writing signed by the Company and Participant.

Submitted by: PARTICIPANT	Accepted by: ALLAKOS INC.
_____	_____
Signature	By
_____	_____
Print Name	Print Name
	_____
	Title
Address:	Address:
_____	75 Shoreway Road
_____	San Carlos, CA 94070
	_____
	Date Received

EXHIBIT B

INVESTMENT REPRESENTATION STATEMENT

PARTICIPANT	:	
COMPANY	:	ALLAKOS INC.
SECURITY	:	COMMON STOCK
AMOUNT	:	
DATE	:	

In connection with the purchase of the above-listed Securities, the undersigned Participant represents to the Company the following:

(a) Participant is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Securities. Participant is acquiring these Securities for investment for Participant's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the Securities Act of 1933, as amended (the "Securities Act").

(b) Participant acknowledges and understands that the Securities constitute "restricted securities" under the Securities Act and have not been registered under the Securities Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Participant's investment intent as expressed herein. In this connection, Participant understands that, in the view of the Securities and Exchange Commission, the statutory basis for such exemption may be unavailable if Participant's representation was predicated solely upon a present intention to hold these Securities for the minimum capital gains period specified under tax statutes, for a deferred sale, for or until an increase or decrease in the market price of the Securities, or for a period of one (1) year or any other fixed period in the future. Participant further understands that the Securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. Participant further acknowledges and understands that the Company is under no obligation to register the Securities. Participant understands that the certificate evidencing the Securities shall be imprinted with any legend required under applicable state securities laws.

(c) Participant is familiar with the provisions of Rule 701 and Rule 144, each promulgated under the Securities Act, which, in substance, permit limited public resale of "restricted securities" acquired, directly or indirectly from the issuer thereof, in a non-public offering subject to the satisfaction of certain conditions. Rule 701 provides that if the issuer qualifies under Rule 701 at the time of the grant of the Option to Participant, the exercise shall be exempt from registration under the Securities Act. In the event the Company becomes subject to the reporting requirements of

Section 13 or 15(d) of the Securities Exchange Act of 1934, ninety (90) days thereafter (or such longer period as any market stand-off agreement may require) the Securities exempt under Rule 701 may be resold, subject to the satisfaction of the applicable conditions specified by Rule 144, including in the case of affiliates (1) the availability of certain public information about the Company, (2) the amount of Securities being sold during any three (3) month period not exceeding specified limitations, (3) the resale being made in an unsolicited "broker's transaction", transactions directly with a "market maker" or "riskless principal transactions" (as those terms are defined under the Securities Exchange Act of 1934) and (4) the timely filing of a Form 144, if applicable.

In the event that the Company does not qualify under Rule 701 at the time of grant of the Option, then the Securities may be resold in certain limited circumstances subject to the provisions of Rule 144, which may require (i) the availability of current public information about the Company; (ii) the resale to occur more than a specified period after the purchase and full payment (within the meaning of Rule 144) for the Securities; and (iii) in the case of the sale of Securities by an affiliate, the satisfaction of the conditions set forth in sections (2), (3) and (4) of the paragraph immediately above.

(d) Participant further understands that in the event all of the applicable requirements of Rule 701 or 144 are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption shall be required; and that, notwithstanding the fact that Rules 144 and 701 are not exclusive, the Staff of the Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rules 144 or 701 shall have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk. Participant understands that no assurances can be given that any such other registration exemption shall be available in such event.

PARTICIPANT

_____

Signature

_____

Print Name

_____

Date

ALLAKOS INC.

2012 EQUITY INCENTIVE PLAN

STOCK OPTION AGREEMENT — EARLY EXERCISE

Unless otherwise defined herein, the terms defined in the 2012 Equity Incentive Plan (the "Plan") shall have the same defined meanings in this Stock Option Agreement – Early Exercise (the "Option Agreement").

I. NOTICE OF STOCK OPTION GRANT

Name:

Address:

The undersigned Participant has been granted an Option to purchase Common Stock of the Company, subject to the terms and conditions of the Plan and this Option Agreement, as follows:

Date of Grant: _____

Vesting Commencement Date: _____

Exercise Price per Share: _____

Total Number of Shares Granted:

Total Exercise Price:

Type of Option: _____ Incentive Stock Option (ISO)

_____ Nonstatutory Stock Option (NSO)

Term/Expiration Date:

Vesting Schedule:

This Option shall be exercisable, in whole or in part, according to the following vesting schedule:

Twenty-five percent (25%) of the Shares subject to the Option shall vest on the one (1) year anniversary of the Vesting Commencement Date, and one forty-eighth (1/48th) of the Shares subject to the Option shall vest each month thereafter on the same day of the month as the Vesting Commencement Date (and if there is no corresponding day, on the last day of the month), subject to Participant continuing to be a Service Provider through each such date.

Termination Period:

This Option shall be exercisable for three (3) months after Participant ceases to be a Service Provider, unless such termination is due to Participant's death or Disability, in which case this Option shall be exercisable for twelve (12) months after Participant ceases to be a Service Provider. Notwithstanding the foregoing sentence, in no event may this Option be exercised after the Term/Expiration Date as provided above and this Option may be subject to earlier termination as provided in Section 13 of the Plan.

II. AGREEMENT

1. Grant of Option. The Administrator of the Company hereby grants to the Participant named in the Notice of Stock Option Grant in Part I of this Agreement ("Participant"), an option (the "Option") to purchase the number of Shares set forth in the Notice of Stock Option Grant, at the exercise price per Share set forth in the Notice of Stock Option Grant (the "Exercise Price"), and subject to the terms and conditions of the Plan, which is incorporated herein by reference. Subject to Section 18 of the Plan, in the event of a conflict between the terms and conditions of the Plan and this Option Agreement, the terms and conditions of the Plan shall prevail.

If designated in the Notice of Stock Option Grant as an Incentive Stock Option ("ISO"), this Option is intended to qualify as an Incentive Stock Option as defined in Section 422 of the Code. Nevertheless, to the extent that it exceeds the $100,000 rule of Code Section 422(d), this Option shall be treated as a Nonstatutory Stock Option ("NSO"). Further, if for any reason this Option (or portion thereof) shall not qualify as an ISO, then, to the extent of such nonqualification, such Option (or portion thereof) shall be regarded as a NSO granted under the Plan. In no event shall the Administrator, the Company or any Parent or Subsidiary or any of their respective employees or directors have any liability to Participant (or any other person) due to the failure of the Option to qualify for any reason as an ISO.

2. Exercise of Option. This Option shall be exercisable during its term in accordance with the provisions of Section 6 of the Plan as follows:

(a) Right to Exercise.

(i) Subject to subsections 2(a)(ii) and 2(a)(iii) below, this Option shall be exercisable cumulatively according to the vesting schedule set forth in the Notice of Stock Option Grant. Alternatively, at the election of Participant, this Option may be exercised in whole or in part at any time as to Shares that have not yet vested. Vested Shares shall not be subject to the Company's repurchase right (as set forth in the Restricted Stock Purchase Agreement, attached hereto as Exhibit C-1).

(ii) As a condition to exercising this Option for unvested Shares, Participant shall execute the Restricted Stock Purchase Agreement.

(iii) This Option may not be exercised for a fraction of a Share.

(b) Method of Exercise. This Option shall be exercisable by delivery of an exercise notice in the form attached as Exhibit A (the "Exercise Notice") or in a manner and pursuant to such procedures as the Administrator may determine, which shall state the election to exercise the Option, the number of Shares with respect to which the Option is being exercised (the "Exercised Shares"), and such other representations and agreements as may be required by the Company. The Exercise Notice shall be accompanied by payment of the aggregate Exercise Price as to all Exercised Shares, together with any applicable tax withholding. This Option shall be deemed to be exercised upon receipt by the Company of such fully executed Exercise Notice accompanied by the aggregate Exercise Price, together with any applicable tax withholding.

No Shares shall be issued pursuant to the exercise of an Option unless such issuance and such exercise comply with Applicable Laws. Assuming such compliance, for income tax purposes the Shares shall be considered transferred to Participant on the date on which the Option is exercised with respect to such Shares.

3. Participant's Representations. In the event the Shares have not been registered under the Securities Act of 1933, as amended (the "Securities Act"), at the time this Option is exercised, Participant shall, if required by the Company, concurrently with the exercise of all or any portion of this Option, deliver to the Company his or her Investment Representation Statement in the form attached hereto as Exhibit B.

4. Lock-Up Period. Participant hereby agrees that Participant shall not offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any Common Stock (or other securities) of the Company or enter into any swap, hedging or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of any Common Stock (or other securities) of the Company held by Participant (other than those included in the registration) for a period specified by the representative of the underwriters of Common Stock (or other securities) of the Company not to exceed one hundred and eighty (180) days following the effective date of any registration statement of the Company filed under the Securities Act (or such other period as may be requested by the Company or the underwriters to accommodate regulatory restrictions on (i) the publication or other distribution of research reports and (ii) analyst recommendations and opinions, including, but not limited to, the restrictions contained in NASD Rule 2711(f)(4) or NYSE Rule 472(f)(4), or any successor provisions or amendments thereto).

Participant agrees to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriter which are consistent with the foregoing or which are necessary to give further effect thereto. In addition, if requested by the Company or the representative of the underwriters of Common Stock (or other securities) of the Company, Participant shall provide, within ten (10) days of such request, such information as may be required by the Company or such representative in connection with the completion of any public offering of the Company's securities pursuant to a registration statement filed under the Securities Act. The obligations described in this Section 4 shall not apply to a registration relating solely to employee benefit plans on Form S-1 or Form S-8 or similar forms that may be promulgated in the future, or a registration relating solely to a Commission Rule 145 transaction on Form S-4 or similar forms that may be promulgated in the future. The Company may impose stop-transfer instructions with respect to the shares of Common Stock (or other securities) subject to the foregoing restriction until the end of said one hundred and eighty (180) day (or other) period. Participant agrees that any transferee of the Option or shares acquired pursuant to the Option shall be bound by this Section 4.

5. Method of Payment. Payment of the aggregate Exercise Price shall be by any of the following, or a combination thereof, at the election of the Participant:

(a) cash;

(b) check;

(c) consideration received by the Company under a formal cashless exercise program adopted by the Company in connection with the Plan; or

(d) surrender of other Shares which (i) shall be valued at its Fair Market Value on the date of exercise, and (ii) must be owned free and clear of any liens, claims, encumbrances or security interests, if accepting such Shares, in the sole discretion of the Administrator, shall not result in any adverse accounting consequences to the Company.

6. Restrictions on Exercise. This Option may not be exercised until such time as the Plan has been approved by the stockholders of the Company, or if the issuance of such Shares upon such exercise or the method of payment of consideration for such shares would constitute a violation of any Applicable Law.

7. Non-Transferability of Option.

(a) This Option may not be transferred in any manner otherwise than by will or by the laws of descent or distribution and may be exercised during the lifetime of Participant only by Participant. The terms of the Plan and this Option Agreement shall be binding upon the executors, administrators, heirs, successors and assigns of Participant.

(b) Further, until the Company becomes subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act, or after the Administrator determines that it is, will, or may no longer be relying upon the exemption from registration of Options under the Exchange Act as set forth in Rule 12h-1(f) promulgated under the Exchange Act (the "Reliance End Date"), Participant shall not transfer this Option or, prior to exercise, the Shares subject to this Option, in any manner other than (i) to persons who are "family members" (as defined in Rule 701(c)(3) of the Securities Act) through gifts or domestic relations orders, or (ii) to an executor or guardian of Participant upon the death or disability of Participant. Until the Reliance End Date, the Options and, prior to exercise, the Shares subject to this Option, may not be pledged, hypothecated or otherwise transferred or disposed of, including by entering into any short position, any "put equivalent position" or any "call equivalent position" (as defined in Rule 16a-1(h) and Rule 16a-1(b) of the Exchange Act, respectively), other than as permitted in clauses (i) and (ii) of this paragraph.

8. Term of Option. This Option may be exercised only within the term set out in the Notice of Stock Option Grant, and may be exercised during such term only in accordance with the Plan and the terms of this Option Agreement.

9. Tax Obligations.

(a) Tax Withholding. Participant agrees to make appropriate arrangements with the Company (or the Parent or Subsidiary employing or retaining Participant) for the satisfaction of all Federal, state, local and foreign income and employment tax withholding requirements applicable to the Option exercise. Participant acknowledges and agrees that the Company may refuse to honor the exercise and refuse to deliver the Shares if such withholding amounts are not delivered at the time of exercise.

(b) Notice of Disqualifying Disposition of ISO Shares. If the Option granted to Participant herein is an ISO, and if Participant sells or otherwise disposes of any of the Shares acquired pursuant to the ISO on or before the later of (i) the date two (2) years after the Date of Grant, or (ii) the date one (1) year after the date of exercise, Participant shall immediately notify the Company in writing of such disposition. Participant agrees that Participant may be subject to income tax withholding by the Company on the compensation income recognized by Participant.

(c) Code Section 409A. Under Code Section 409A, an Option that vests after December 31, 2004 (or that vested on or prior to such date but which was materially modified after October 3, 2004) that was granted with a per Share exercise price that is determined by the Internal Revenue Service (the "IRS") to be less than the Fair Market Value of a Share on the date of grant (a "discount option") may be considered "deferred compensation." An Option that is a "discount option" may result in (i) income recognition by Participant prior to the exercise of the Option, (ii) an additional twenty percent (20%) federal income tax, and (iii) potential penalty and interest charges. The "discount option" may also result in additional state income, penalty and interest tax to the Participant. Participant acknowledges that the Company cannot and has not guaranteed that the IRS will agree that the per Share exercise price of this Option equals or exceeds the Fair Market Value of a Share on the date of grant in a later examination. Participant agrees that if the IRS determines that the Option was granted with a per Share exercise price that was less than the Fair Market Value of a Share on the date of grant, Participant shall be solely responsible for Participant's costs related to such a determination.

10. Entire Agreement; Governing Law. The Plan is incorporated herein by reference. The Plan and this Option Agreement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof, and may not be modified adversely to the Participant's interest except by means of a writing signed by the Company and Participant. This Option Agreement is governed by the internal substantive laws but not the choice of law rules of California.

11. No Guarantee of Continued Service. PARTICIPANT ACKNOWLEDGES AND AGREES THAT THE VESTING OF SHARES PURSUANT TO THE VESTING SCHEDULE HEREOF IS EARNED ONLY BY CONTINUING AS A SERVICE PROVIDER AT THE WILL OF THE COMPANY (OR THE PARENT OR SUBSIDIARY EMPLOYING OR RETAINING PARTICIPANT) AND NOT THROUGH THE ACT OF BEING HIRED, BEING GRANTED THIS OPTION OR ACQUIRING SHARES HEREUNDER. PARTICIPANT FURTHER ACKNOWLEDGES AND AGREES THAT THIS AGREEMENT, THE TRANSACTIONS CONTEMPLATED HEREUNDER AND THE VESTING SCHEDULE SET FORTH HEREIN DO NOT CONSTITUTE AN EXPRESS OR IMPLIED PROMISE OF CONTINUED ENGAGEMENT AS A SERVICE PROVIDER FOR THE VESTING PERIOD, FOR ANY PERIOD, OR AT ALL,

AND SHALL NOT INTERFERE IN ANY WAY WITH PARTICIPANT'S RIGHT OR THE RIGHT OF THE COMPANY (OR THE PARENT OR SUBSIDIARY EMPLOYING OR RETAINING PARTICIPANT) TO TERMINATE PARTICIPANT'S RELATIONSHIP AS A SERVICE PROVIDER AT ANY TIME, WITH OR WITHOUT CAUSE.

Participant acknowledges receipt of a copy of the Plan and represents that he or she is familiar with the terms and provisions thereof, and hereby accepts this Option subject to all of the terms and provisions thereof. Participant has reviewed the Plan and this Option in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Option and fully understands all provisions of the Option. Participant hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Administrator upon any questions arising under the Plan or this Option. Participant further agrees to notify the Company upon any change in the residence address indicated below.

PARTICIPANT	ALLAKOS INC.
Signature	By
Print Name	Print Name
	Title
Residence Address	
Date	

EXHIBIT A

2012 EQUITY INCENTIVE PLAN

EXERCISE NOTICE

Allakos Inc.
75 Shoreway Road
San Carlos, CA 94070

Attention: Secretary

1. Exercise of Option. Effective as of today, , , the undersigned ("Participant") hereby elects to exercise Participant's option (the "Option") to purchase shares of the Common Stock (the "Shares") of Allakos Inc. (the "Company") under and pursuant to the 2012 Equity Incentive Plan (the "Plan") and the Stock Option Agreement – Early Exercise dated (the "Option Agreement").

2. Delivery of Payment. Participant herewith delivers to the Company the full purchase price of the Shares, as set forth in the Option Agreement, and any and all withholding taxes due in connection with the exercise of the Option.

3. Representations of Participant. Participant acknowledges that Participant has received, read and understood the Plan and the Option Agreement and agrees to abide by and be bound by their terms and conditions.

4. Rights as Stockholder. Until the issuance of the Shares (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company), no right to vote or receive dividends or any other rights as a stockholder shall exist with respect to the Common Stock subject to an Award, notwithstanding the exercise of the Option. The Shares shall be issued to Participant as soon as practicable after the Option is exercised in accordance with the Option Agreement. No adjustment shall be made for a dividend or other right for which the record date is prior to the date of issuance except as provided in Section 13 of the Plan.

5. Company's Right of First Refusal. Before any Shares held by Participant or any transferee (either being sometimes referred to herein as the "Holder") may be sold or otherwise transferred (including transfer by gift or operation of law), the Company or its assignee(s) shall have a right of first refusal to purchase the Shares on the terms and conditions set forth in this Section 5 (the "Right of First Refusal").

(a) Notice of Proposed Transfer. The Holder of the Shares shall deliver to the Company a written notice (the "Notice") stating: (i) the Holder's bona fide intention to sell or otherwise transfer such Shares; (ii) the name of each proposed purchaser or other transferee ("Proposed Transferee"); (iii) the number of Shares to be transferred to each Proposed Transferee; and (iv) the bona fide cash price or other consideration for which the Holder proposes to transfer the Shares (the "Offered Price"), and the Holder shall offer the Shares at the Offered Price to the Company or its assignee(s).

(b) Exercise of Right of First Refusal. At any time within thirty (30) days after receipt of the Notice, the Company and/or its assignee(s) may, by giving written notice to the Holder, elect to purchase all, but not less than all, of the Shares proposed to be transferred to any one or more of the Proposed Transferees, at the purchase price determined in accordance with subsection (c) below.

(c) Purchase Price. The purchase price ("Purchase Price") for the Shares purchased by the Company or its assignee(s) under this Section 5 shall be the Offered Price. If the Offered Price includes consideration other than cash, the cash equivalent value of the non-cash consideration shall be determined by the Board of Directors of the Company in good faith.

(d) Payment. Payment of the Purchase Price shall be made, at the option of the Company or its assignee(s), in cash (by check), by cancellation of all or a portion of any outstanding indebtedness of the Holder to the Company (or, in the case of repurchase by an assignee, to the assignee), or by any combination thereof within thirty (30) days after receipt of the Notice or in the manner and at the times set forth in the Notice.

(e) Holder's Right to Transfer. If all of the Shares proposed in the Notice to be transferred to a given Proposed Transferee are not purchased by the Company and/or its assignee(s) as provided in this Section 5, then the Holder may sell or otherwise transfer such Shares to that Proposed Transferee at the Offered Price or at a higher price, provided that such sale or other transfer is consummated within one hundred and twenty (120) days after the date of the Notice, that any such sale or other transfer is effected in accordance with any applicable securities laws and that the Proposed Transferee agrees in writing that the provisions of this Section 5 shall continue to apply to the Shares in the hands of such Proposed Transferee. If the Shares described in the Notice are not transferred to the Proposed Transferee within such period, a new Notice shall be given to the Company, and the Company and/or its assignees shall again be offered the Right of First Refusal before any Shares held by the Holder may be sold or otherwise transferred.

(f) Exception for Certain Family Transfers. Anything to the contrary contained in this Section 5 notwithstanding, the transfer of any or all of the Shares during the Participant's lifetime or on the Participant's death by will or intestacy to the Participant's immediate family or a trust for the benefit of the Participant's immediate family shall be exempt from the provisions of this Section 5. "Immediate Family" as used herein shall mean spouse, lineal descendant or antecedent, father, mother, brother or sister. In such case, the transferee or other recipient shall receive and hold the Shares so transferred subject to the provisions of this Section 5, and there shall be no further transfer of such Shares except in accordance with the terms of this Section 5.

(g) Termination of Right of First Refusal. The Right of First Refusal shall terminate as to any Shares upon the earlier of (i) the first sale of Common Stock of the Company to the general public, or (ii) a Change in Control in which the successor corporation has equity securities that are publicly traded.

6. Tax Consultation. Participant understands that Participant may suffer adverse tax consequences as a result of Participant's purchase or disposition of the Shares. Participant represents that Participant has consulted with any tax consultants Participant deems advisable in connection with the purchase or disposition of the Shares and that Participant is not relying on the Company for any tax advice.

7. Restrictive Legends and Stop-Transfer Orders.

(a) Legends. Participant understands and agrees that the Company shall cause the legends set forth below or legends substantially equivalent thereto, to be placed upon any certificate(s) evidencing ownership of the Shares together with any other legends that may be required by the Company or by state or federal securities laws:

THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 (THE "ACT") AND MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED UNLESS AND UNTIL REGISTERED UNDER THE ACT OR, IN THE OPINION OF COUNSEL SATISFACTORY TO THE ISSUER OF THESE SECURITIES, SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION IS IN COMPLIANCE THEREWITH.

THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO CERTAIN RESTRICTIONS ON TRANSFER AND A RIGHT OF FIRST REFUSAL HELD BY THE ISSUER OR ITS ASSIGNEE(S) AS SET FORTH IN THE EXERCISE NOTICE BETWEEN THE ISSUER AND THE ORIGINAL HOLDER OF THESE SHARES, A COPY OF WHICH MAY BE OBTAINED AT THE PRINCIPAL OFFICE OF THE ISSUER. SUCH TRANSFER RESTRICTIONS AND RIGHT OF FIRST REFUSAL ARE BINDING ON TRANSFEREES OF THESE SHARES.

THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO RESTRICTIONS ON TRANSFER FOR A PERIOD OF TIME FOLLOWING THE EFFECTIVE DATE OF THE UNDERWRITTEN PUBLIC OFFERING OF THE COMPANY'S SECURITIES SET FORTH IN AN AGREEMENT BETWEEN THE ISSUER AND THE ORIGINAL HOLDER OF THESE SHARES AND MAY NOT BE SOLD OR OTHERWISE DISPOSED OF BY THE HOLDER PRIOR TO THE EXPIRATION OF SUCH PERIOD WITHOUT THE CONSENT OF THE COMPANY OR THE MANAGING UNDERWRITER.

(b) Stop-Transfer Notices. Participant agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) Refusal to Transfer. The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Exercise Notice or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

8. Successors and Assigns. The Company may assign any of its rights under this Exercise Notice to single or multiple assignees, and this Exercise Notice shall inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer herein set forth, this Exercise Notice shall be binding upon Participant and his or her heirs, executors, administrators, successors and assigns.

9. Interpretation. Any dispute regarding the interpretation of this Exercise Notice shall be submitted by Participant or by the Company forthwith to the Administrator, which shall review such dispute at its next regular meeting. The resolution of such a dispute by the Administrator shall be final and binding on all parties.

10. Governing Law; Severability. This Exercise Notice is governed by the internal substantive laws, but not the choice of law rules, of California. In the event that any provision hereof becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, this Exercise Notice shall continue in full force and effect.

11. Entire Agreement. The Plan and Option Agreement are incorporated herein by reference. This Exercise Notice, the Plan, the Restricted Stock Purchase Agreement, the Option Agreement and the Investment Representation Statement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof, and may not be modified adversely to the Participant's interest except by means of a writing signed by the Company and Participant.

Submitted by: PARTICIPANT	Accepted by: ALLAKOS INC.
_____ Signature	_____ By
_____ Print Name	_____ Print Name
	_____ Title
Address:	Address:
_____	75 Shoreway Road
_____	San Carlos, CA 94070
	_____ Date Received

EXHIBIT B

INVESTMENT REPRESENTATION STATEMENT

PARTICIPANT	:	
COMPANY	:	ALLAKOS INC.
SECURITY	:	COMMON STOCK
AMOUNT	:	
DATE	:	

In connection with the purchase of the above-listed Securities, the undersigned Participant represents to the Company the following:

(a) Participant is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Securities. Participant is acquiring these Securities for investment for Participant's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the Securities Act of 1933, as amended (the "Securities Act").

(b) Participant acknowledges and understands that the Securities constitute "restricted securities" under the Securities Act and have not been registered under the Securities Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Participant's investment intent as expressed herein. In this connection, Participant understands that, in the view of the Securities and Exchange Commission, the statutory basis for such exemption may be unavailable if Participant's representation was predicated solely upon a present intention to hold these Securities for the minimum capital gains period specified under tax statutes, for a deferred sale, for or until an increase or decrease in the market price of the Securities, or for a period of one (1) year or any other fixed period in the future. Participant further understands that the Securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. Participant further acknowledges and understands that the Company is under no obligation to register the Securities. Participant understands that the certificate evidencing the Securities shall be imprinted with any legend required under applicable state securities laws.

(c) Participant is familiar with the provisions of Rule 701 and Rule 144, each promulgated under the Securities Act, which, in substance, permit limited public resale of "restricted securities" acquired, directly or indirectly from the issuer thereof, in a non-public offering subject to the satisfaction of certain conditions. Rule 701 provides that if the issuer qualifies under Rule 701 at the time of the grant of the Option to Participant, the exercise shall be exempt from registration under the Securities Act. In the event the Company becomes subject to the reporting requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, ninety (90) days thereafter (or such

longer period as any market stand-off agreement may require) the Securities exempt under Rule 701 may be resold, subject to the satisfaction of the applicable conditions specified by Rule 144, including in the case of affiliates (1) the availability of certain public information about the Company, (2) the amount of Securities being sold during any three (3) month period not exceeding specified limitations, (3) the resale being made in an unsolicited "broker's transaction", transactions directly with a "market maker" or "riskless principal transactions" (as those terms are defined under the Securities Exchange Act of 1934) and (4) the timely filing of a Form 144, if applicable.

In the event that the Company does not qualify under Rule 701 at the time of grant of the Option, then the Securities may be resold in certain limited circumstances subject to the provisions of Rule 144, which may require (i) the availability of current public information about the Company; (ii) the resale to occur more than a specified period after the purchase and full payment (within the meaning of Rule 144) for the Securities; and (iii) in the case of the sale of Securities by an affiliate, the satisfaction of the conditions set forth in sections (2), (3) and (4) of the paragraph immediately above.

(d) Participant further understands that in the event all of the applicable requirements of Rule 701 or 144 are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption shall be required; and that, notwithstanding the fact that Rules 144 and 701 are not exclusive, the Staff of the Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rules 144 or 701 shall have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk. Participant understands that no assurances can be given that any such other registration exemption shall be available in such event.

PARTICIPANT

_____

Signature

_____

Print Name

_____

Date

EXHIBIT C-1

ALLAKOS INC.

2012 EQUITY INCENTIVE PLAN

RESTRICTED STOCK PURCHASE AGREEMENT

THIS RESTRICTED STOCK PURCHASE AGREEMENT (the "Agreement") is made between (the "Purchaser") and Allakos Inc. (the "Company") or its assignees of rights hereunder as of , .

Unless otherwise defined herein, the terms defined in the 2012 Equity Incentive Plan shall have the same defined meanings in this Agreement.

RECITALS

A. Pursuant to the exercise of the option (grant number) granted to Purchaser under the Plan and pursuant to the Stock Option Agreement – Early Exercise (the "Option Agreement") dated , by and between the Company and Purchaser with respect to such grant (the "Option"), which Plan and Option Agreement are hereby incorporated by reference, Purchaser has elected to purchase of those shares of Common Stock which have not become vested under the vesting schedule set forth in the Option Agreement ("Unvested Shares"). The Unvested Shares and the shares subject to the Option Agreement, which have become vested are sometimes collectively referred to herein as the "Shares."

B. As required by the Option Agreement, as a condition to Purchaser's election to exercise the option, Purchaser must execute this Agreement, which sets forth the rights and obligations of the parties with respect to Shares acquired upon exercise of the Option.

1. Repurchase Option.

(a) If Purchaser's status as a Service Provider is terminated for any reason, including for death and Disability, the Company shall have the right and option for ninety (90) days from such date to purchase from Purchaser, or Purchaser's personal representative, as the case may be, all of the Purchaser's Unvested Shares as of the date of such termination at the price paid by the Purchaser for such Shares (the "Repurchase Option").

(b) Upon the occurrence of such termination, the Company may exercise its Repurchase Option by delivering personally or by registered mail, to Purchaser (or his or her transferee or legal representative, as the case may be) with a copy to the escrow agent described in Section 2 below, a notice in writing indicating the Company's intention to exercise the Repurchase Option AND, at the Company's option, (i) by delivering to the Purchaser (or the Purchaser's transferee or legal representative) a check in the amount of the aggregate repurchase price, or (ii) by the Company canceling an amount of the Purchaser's indebtedness to the Company equal to the aggregate repurchase price, or (iii) by a combination of (i) and (ii) so that the combined payment and

cancellation of indebtedness equals such aggregate repurchase price. Upon delivery of such notice and payment of the aggregate repurchase price in any of the ways described above, the Company shall become the legal and beneficial owner of the Unvested Shares being repurchased and the rights and interests therein or relating thereto, and the Company shall have the right to retain and transfer to its own name the number of Unvested Shares being repurchased by the Company.

(c) Whenever the Company shall have the right to repurchase Unvested Shares hereunder, the Company may designate and assign one or more employees, officers, directors or stockholders of the Company or other persons or organizations to exercise all or a part of the Company's Repurchase Option under this Agreement and purchase all or a part of such Unvested Shares.

(d) If the Company does not elect to exercise the Repurchase Option conferred above by giving the requisite notice within ninety (90) days following the termination, the Repurchase Option shall terminate.

(e) The Repurchase Option shall terminate in accordance with the vesting schedule contained in Purchaser's Option Agreement.

2. Transferability of the Shares; Escrow.

(a) Purchaser hereby authorizes and directs the Secretary of the Company, or such other person designated by the Company, to transfer the Unvested Shares as to which the Repurchase Option has been exercised from Purchaser to the Company.

(b) To insure the availability for delivery of Purchaser's Unvested Shares upon repurchase by the Company pursuant to the Repurchase Option under Section 1, Purchaser hereby appoints the Secretary, or any other person designated by the Company as escrow agent (the "Escrow Agent"), as its attorney-in-fact to sell, assign and transfer unto the Company, such Unvested Shares, if any, repurchased by the Company pursuant to the Repurchase Option and shall, upon execution of this Agreement, deliver and deposit with the Escrow Agent, the share certificates representing the Unvested Shares, together with the stock assignment duly endorsed in blank, attached hereto as Exhibit C-2. The Unvested Shares and stock assignment shall be held by the Escrow Agent in escrow, pursuant to the Joint Escrow Instructions of the Company and Purchaser attached as Exhibit C-3 hereto, until the Company exercises its Repurchase Option, until such Unvested Shares are vested, or until such time as this Agreement no longer is in effect. Upon vesting of the Unvested Shares, the Escrow Agent shall promptly deliver to the Purchaser the certificate or certificates representing such Shares in the Escrow Agent's possession belonging to the Purchaser, and the Escrow Agent shall be discharged of all further obligations hereunder; provided, however, that the Escrow Agent shall nevertheless retain such certificate or certificates as Escrow Agent if so required pursuant to other restrictions imposed pursuant to this Agreement.

(c) Neither the Company nor the Escrow Agent shall be liable for any act it may do or omit to do with respect to holding the Shares in escrow and while acting in good faith and in the exercise of its judgment.

(d) Transfer or sale of the Shares is subject to restrictions on transfer imposed by any applicable state and federal securities laws. Any transferee shall hold such Shares subject to all the provisions hereof and the Exercise Notice executed by the Purchaser with respect to any Unvested Shares purchased by Purchaser and shall acknowledge the same by signing a copy of this Agreement.

3. Ownership, Voting Rights, Duties. This Agreement shall not affect in any way the ownership, voting rights or other rights or duties of Purchaser, except as specifically provided herein.

4. Legends. The share certificate evidencing the Shares issued hereunder shall be endorsed with the following legend (in addition to any legend required under applicable federal and state securities laws):

> THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO CERTAIN RESTRICTIONS UPON TRANSFER AND RIGHTS OF REPURCHASE AS SET FORTH IN AN AGREEMENT BETWEEN THE COMPANY AND THE STOCKHOLDER, A COPY OF WHICH IS ON FILE WITH THE SECRETARY OF THE COMPANY.

5. Adjustment for Stock Split. All references to the number of Shares and the purchase price of the Shares in this Agreement shall be appropriately adjusted to reflect any stock split, stock dividend or other change in the Shares, which may be made by the Company pursuant to Section 13 of the Plan after the date of this Agreement.

6. Notices. Notices required hereunder shall be given in person or by registered mail to the address of Purchaser shown on the records of the Company, and to the Company at their respective principal executive offices.

7. Survival of Terms. This Agreement shall apply to and bind Purchaser and the Company and their respective permitted assignees and transferees, heirs, legatees, executors, administrators and legal successors.

8. Section 83(b) Election. Purchaser hereby acknowledges that he or she has been informed that, with respect to the exercise of an Option for Unvested Shares, an election (the "Election") may be filed by the Purchaser with the Internal Revenue Service, within thirty (30) days of the purchase of the exercised Shares, electing pursuant to Section 83(b) of the Code to be taxed currently on any difference between the purchase price of the exercised Shares and their Fair Market Value on the date of purchase. In the case of a Nonstatutory Stock Option, this will result in the recognition of taxable income to the Purchaser on the date of exercise, measured by the excess, if any, of the Fair Market Value of the exercised Shares, at the time the Option is exercised over the purchase price for the exercised Shares. Absent such an Election, taxable income will be measured and recognized by Purchaser at the time or times on which the Company's Repurchase Option lapses. In the case of an Incentive Stock Option, such an Election will result in a recognition of income to the Purchaser for alternative minimum tax purposes on the date of exercise, measured by the excess, if any, of the Fair Market Value of the exercised Shares, at the time the option is exercised, over the purchase price for the exercised Shares. Absent such an Election, alternative minimum taxable income will be measured and recognized by Purchaser at the time or times on which the Company's Repurchase Option lapses.

This discussion is intended only as a summary of the general United States income tax laws that apply to exercising Options as to Shares that have not yet vested and is accurate only as of the date this form Agreement was approved by the Board. The federal, state and local tax consequences to any particular taxpayer will depend upon his or her individual circumstances. Purchaser is strongly encouraged to seek the advice of his or her own tax consultants in connection with the purchase of the Shares and the advisability of filing of the Election under Section 83(b) of the Code. A form of Election under Section 83(b) is attached hereto as Exhibit C-4 for reference.

PURCHASER ACKNOWLEDGES THAT IT IS PURCHASER'S SOLE RESPONSIBILITY AND NOT THE COMPANY'S TO FILE TIMELY THE ELECTION UNDER SECTION 83(b) OF THE CODE, EVEN IF PURCHASER REQUESTS THE COMPANY OR ITS REPRESENTATIVE TO MAKE THIS FILING ON PURCHASER'S BEHALF.

9. Representations. Purchaser has reviewed with his or her own tax advisors the federal, state, local and foreign tax consequences of this investment and the transactions contemplated by this Agreement. Purchaser is relying solely on such advisors and not on any statements or representations of the Company or any of its agents. Purchaser understands that he or she (and not the Company) shall be responsible for his or her own tax liability that may arise as a result of this investment or the transactions contemplated by this Agreement.

10. Entire Agreement; Governing Law. The Plan and Option Agreement are incorporated herein by reference. The Plan, the Option Agreement, the Exercise Notice, this Agreement, and the Investment Representation Statement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and Purchaser with respect to the subject matter hereof, and may not be modified adversely to the Purchaser's interest except by means of a writing signed by the Company and Purchaser. This Agreement is governed by the internal substantive laws but not the choice of law rules of California.

Purchaser represents that he or she has read this Agreement and is familiar with its terms and provisions. Purchaser hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Board upon any questions arising under this Agreement.

IN WITNESS WHEREOF, this Agreement is deemed made as of the date first set forth above.

PARTICIPANT	ALLAKOS INC.
_____	_____
Signature	By
_____	_____
Print Name	Print Name
_____	_____
	Title
_____	
Residence Address	
Dated: _____,_____	

EXHIBIT C-2

ASSIGNMENT SEPARATE FROM CERTIFICATE

FOR VALUE RECEIVED I, , hereby sell, assign and transfer unto Allakos Inc. shares of the Common Stock of Allakos Inc. standing in my name of the books of said corporation represented by Certificate No. herewith and do hereby irrevocably constitute and appoint to transfer the said stock on the books of the within named corporation with full power of substitution in the premises.

This Stock Assignment may be used only in accordance with the Restricted Stock Purchase Agreement between Allakos Inc. and the undersigned dated , (the "Agreement").

Dated: _____,____ Signature:_____

INSTRUCTIONS: Please do not fill in any blanks other than the signature line. The purpose of this assignment is to enable the Company to exercise its "repurchase option," as set forth in the Agreement, without requiring additional signatures on the part of the Purchaser.

EXHIBIT C-3

JOINT ESCROW INSTRUCTIONS

_____, ____

Corporate SecretaryAllakos Inc.
75 Shoreway Road
San Carlos, CA 94070

Dear _____:

As Escrow Agent for both Allakos Inc. (the "Company"), and the undersigned purchaser of stock of the Company (the "Purchaser"), you are hereby authorized and directed to hold the documents delivered to you pursuant to the terms of that certain Restricted Stock Purchase Agreement (the "Agreement") between the Company and the undersigned, in accordance with the following instructions:

1. In the event the Company and/or any assignee of the Company (referred to collectively for convenience herein as the "Company") exercises the Company's repurchase option set forth in the Agreement, the Company shall give to Purchaser and you a written notice specifying the number of shares of stock to be purchased, the purchase price, and the time for a closing hereunder at the principal office of the Company. Purchaser and the Company hereby irrevocably authorize and direct you to close the transaction contemplated by such notice in accordance with the terms of said notice.

2. At the closing, you are directed (a) to date the stock assignments necessary for the transfer in question, (b) to fill in the number of shares being transferred, and (c) to deliver the stock assignments, together with the certificate evidencing the shares of stock to be transferred, to the Company or its assignee, against the simultaneous delivery to you of the purchase price (by cash, a check, or some combination thereof) for the number of shares of stock being purchased pursuant to the exercise of the Company's repurchase option.

3. Purchaser irrevocably authorizes the Company to deposit with you any certificates evidencing shares of stock to be held by you hereunder and any additions and substitutions to said shares as defined in the Agreement. Purchaser does hereby irrevocably constitute and appoint you as Purchaser's attorney-in-fact and agent for the term of this escrow to execute with respect to such securities all documents necessary or appropriate to make such securities negotiable and to complete any transaction herein contemplated, including but not limited to the filing with any applicable state blue sky authority of any required applications for consent to, or notice of transfer of, the securities. Subject to the provisions of this paragraph 3, Purchaser shall exercise all rights and privileges of a stockholder of the Company while the stock is held by you.

4. Upon written request of the Purchaser, but no more than once per calendar year, unless the Company's repurchase option has been exercised, you shall deliver to Purchaser a certificate or certificates representing so many shares of stock as are not then subject to the Company's repurchase option. Within one hundred and twenty (120) days after cessation of

Purchaser's continuous employment by or services to the Company, or any parent or subsidiary of the Company, you shall deliver to Purchaser a certificate or certificates representing the aggregate number of shares held or issued pursuant to the Agreement and not purchased by the Company or its assignees pursuant to exercise of the Company's repurchase option.

5. If at the time of termination of this escrow you should have in your possession any documents, securities, or other property belonging to Purchaser, you shall deliver all of the same to Purchaser and shall be discharged of all further obligations hereunder.

6. Your duties hereunder may be altered, amended, modified or revoked only by a writing signed by all of the parties hereto.

7. You shall be obligated only for the performance of such duties as are specifically set forth herein and may rely and shall be protected in relying or refraining from acting on any instrument reasonably believed by you to be genuine and to have been signed or presented by the proper party or parties. You shall not be personally liable for any act you may do or omit to do hereunder as Escrow Agent or as attorney-in-fact for Purchaser while acting in good faith, and any act done or omitted by you pursuant to the advice of your own attorneys shall be conclusive evidence of such good faith.

8. You are hereby expressly authorized to disregard any and all warnings given by any of the parties hereto or by any other person or corporation, excepting only orders or process of courts of law and are hereby expressly authorized to comply with and obey orders, judgments or decrees of any court. In case you obey or comply with any such order, judgment or decree, you shall not be liable to any of the parties hereto or to any other person, firm or corporation by reason of such compliance, notwithstanding any such order, judgment or decree being subsequently reversed, modified, annulled, set aside, vacated or found to have been entered without jurisdiction.

9. You shall not be liable in any respect on account of the identity, authorities or rights of the parties executing or delivering or purporting to execute or deliver the Agreement or any documents or papers deposited or called for hereunder.

10. You shall not be liable for the outlawing of any rights under the Statute of Limitations with respect to these Joint Escrow Instructions or any documents deposited with you.

11. You shall be entitled to employ such legal counsel and other experts as you may deem necessary properly to advise you in connection with your obligations hereunder, may rely upon the advice of such counsel, and may pay such counsel reasonable compensation therefor.

12. Your responsibilities as Escrow Agent hereunder shall terminate if you shall cease to be an officer or agent of the Company or if you shall resign by written notice to each party. In the event of any such termination, the Company shall appoint a successor Escrow Agent.

13. If you reasonably require other or further instruments in connection with these Joint Escrow Instructions or obligations in respect hereto, the necessary parties hereto shall join in furnishing such instruments.

14. It is understood and agreed that should any dispute arise with respect to the delivery and/or ownership or right of possession of the securities held by you hereunder, you are authorized and directed to retain in your possession without liability to anyone all or any part of said securities until such disputes shall have been settled either by mutual written agreement of the parties concerned or by a final order, decree or judgment of a court of competent jurisdiction after the time for appeal has expired and no appeal has been perfected, but you shall be under no duty whatsoever to institute or defend any such proceedings.

15. Any notice required or permitted hereunder shall be given in writing and shall be deemed effectively given upon personal delivery or upon deposit in the United States Post Office, by registered or certified mail with postage and fees prepaid, addressed to each of the other parties thereunto entitled at the following addresses or at such other addresses as a party may designate by ten (10) days' advance written notice to each of the other parties hereto.

16. By signing these Joint Escrow Instructions, you become a party hereto only for the purpose of said Joint Escrow Instructions; you do not become a party to the Agreement.

17. This instrument shall be binding upon and inure to the benefit of the parties hereto, and their respective successors and permitted assigns.

18. These Joint Escrow Instructions shall be governed by the internal substantive laws, but not the choice of law rules, of California.

PURCHASER

_____
Signature

_____
Print Name

_____

_____
Residence Address

ESCROW AGENT

_____
Corporate Secretary

Dated:_____

ALLAKOS INC.

_____
By

_____
Print Name

_____
Title

EXHIBIT C-4

ELECTION UNDER SECTION 83(b)
OF THE INTERNAL REVENUE CODE OF 1986

The undersigned taxpayer hereby elects, pursuant to Sections 55 and 83(b) of the Internal Revenue Code of 1986, as amended, to include in taxpayer's gross income or alternative minimum taxable income, as the case may be, for the current taxable year the amount of any compensation taxable to taxpayer in connection with taxpayer's receipt of the property described below.

1. The name, address, taxpayer identification number and taxable year of the undersigned are as follows:

	TAXPAYER	SPOUSE
NAME:	_____	_____
ADDRESS:	_____	_____
	_____	_____
TAX ID NO.:	_____	_____
TAXABLE YEAR:	_____	

2. The property with respect to which the election is made is described as follows: _____ shares (the "Shares") of the Common Stock of Allakos Inc. (the "Company").

3. The date on which the property was transferred is:_____ ,_____.

4. The property is subject to the following restrictions:

   The Shares may not be transferred and are subject to forfeiture under the terms of an agreement between the taxpayer and the Company. These restrictions lapse upon the satisfaction of certain conditions contained in such agreement.

5. The Fair Market Value at the time of transfer, determined without regard to any restriction other than a restriction which by its terms shall never lapse, of such property is: $_____.

6. The amount (if any) paid for such property is: $_____.

The undersigned has submitted a copy of this statement to the person for whom the services were performed in connection with the undersigned's receipt of the above-described property. The transferee of such property is the person performing the services in connection with the transfer of said property.

The undersigned understands that the foregoing election may not be revoked except with the consent of the Commissioner.

Dated: _____, _____

_____
Taxpayer

The undersigned spouse of taxpayer joins in this election.

Dated: _____, _____

_____
Spouse of Taxpayer

ALLAKOS INC.

2012 EQUITY INCENTIVE PLAN

RESTRICTED STOCK PURCHASE AGREEMENT

Unless otherwise defined herein, the terms defined in the 2012 Equity Incentive Plan (the "Plan") shall have the same defined meanings in this Restricted Stock Purchase Agreement (the "Agreement").

I. NOTICE OF GRANT OF RESTRICTED STOCK

Name:

Address:

The undersigned Participant has been granted a right to purchase Common Stock of the Company, subject to the terms and conditions of the Plan and this Agreement, as follows:

Date of Grant:	_____
Vesting Commencement Date:	_____
Purchase Price per Share:	$ _____
Total Number of Shares Granted:	_____
Total Purchase Price:	$ _____
Expiration Date:	_____

Vesting Schedule:

Subject to any accelerated vesting provisions in the Plan, twenty-five percent (25%) of the Shares subject to this Agreement shall be released from the Company's Repurchase Option on the one (1) year anniversary of the Vesting Commencement Date, and one forty-eighth (1/48th) of the Shares subject to this Agreement shall be released each month thereafter on the same day of the month as the Vesting Commencement Date (and if there is no corresponding day, on the last day of the month), subject to Participant continuing to be a Service Provider through each such date.

Any of the Shares which have not yet been released from the Company's Repurchase Option are referred to herein as "Unreleased Shares." The Shares which have been released from the Company's Repurchase Option shall be delivered to Participant at Participant's request (see Section 11 of Part II of this Agreement).

YOU MUST EXERCISE THIS RESTRICTED STOCK AWARD BEFORE THE EXPIRATION DATE OR IT WILL TERMINATE AND YOU WILL HAVE NO FURTHER RIGHT TO PURCHASE THE SHARES.

II. AGREEMENT

1. Sale of Stock. The Administrator of the Company hereby agrees to sell to the Participant named in the Notice of Grant of Restricted Stock in Part I of this Agreement ("Participant"), and Participant hereby agrees to purchase the number of Shares set forth in the Notice of Grant of Restricted Stock, at the Purchase Price per Share set forth in the Notice of Grant of Restricted Stock (the "Purchase Price"), and subject to the terms and conditions of the Plan, which is incorporated herein by reference. Subject to Section 18(c) of the Plan, in the event of a conflict between the terms and conditions of the Plan and this Agreement, the terms and conditions of the Plan shall prevail.

2. Payment of Purchase Price. Participant herewith delivers to the Company the aggregate Purchase Price for the Shares by cash or check, together with any and all withholding taxes due in connection with the purchase of the Shares.

3. Participant's Representations. In the event the Shares have not been registered under the Securities Act of 1933, as amended, at the time this Restricted Stock Award is exercised, Participant shall, if required by the Company, concurrently with the exercise of all or any portion of this Restricted Stock Award, deliver to the Company his or her Investment Representation Statement in the form attached hereto as Exhibit A.

4. Lock-Up Period. Participant hereby agrees that Participant shall not offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any Common Stock (or other securities) of the Company or enter into any swap, hedging or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of any Common Stock (or other securities) of the Company held by Participant (other than those included in the registration) for a period specified by the representative of the underwriters of Common Stock (or other securities) of the Company not to exceed one hundred and eighty (180) days following the effective date of any registration statement of the Company filed under the Securities Act (or such other period as may be requested by the Company or the underwriters to accommodate regulatory restrictions on (i) the publication or other distribution of research reports and (ii) analyst recommendations and opinions, including, but not limited to, the restrictions contained in NASD Rule 2711(f)(4) or NYSE Rule 472(f)(4), or any successor provisions or amendments thereto).

Participant agrees to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriter which are consistent with the foregoing or which are necessary to give further effect thereto. In addition, if requested by the Company or the representative of the underwriters of Common Stock (or other securities) of the Company, Participant shall provide, within ten (10) days of such request, such information as may be required by the Company or such representative in connection with the completion of any public offering of

the Company's securities pursuant to a registration statement filed under the Securities Act. The obligations described in this Section 4 shall not apply to a registration relating solely to employee benefit plans on Form S-1 or Form S-8 or similar forms that may be promulgated in the future, or a registration relating solely to a Commission Rule 145 transaction on Form S-4 or similar forms that may be promulgated in the future. The Company may impose stop-transfer instructions with respect to the shares of Common Stock (or other securities) subject to the foregoing restriction until the end of said one hundred and eighty (180) day (or other) period. Participant agrees that any transferee of the Restricted Stock Award or shares acquired pursuant to the Restricted Stock Award shall be bound by this Section 4.

5. Non-Transferability of Restricted Stock. This Restricted Stock Award may not be transferred in any manner otherwise than by will or by the laws of descent or distribution and may be exercised during the lifetime of Participant only by Participant. The terms of the Plan and this Agreement shall be binding upon the executors, administrators, heirs, successors and assigns of Participant.

6. Tax Consequences. Participant has reviewed with Participant's own tax advisors the federal, state, local and foreign tax consequences of this investment and the transactions contemplated by this Agreement. Participant is relying solely on such advisors and not on any statements or representations of the Company or any of its agents. Participant understands that Participant (and not the Company) shall be responsible for Participant's own tax liability that may arise as a result of the transactions contemplated by this Agreement. Participant understands that Section 83 of the Internal Revenue Code of 1986, as amended (the "Code"), taxes as ordinary income the difference between the purchase price for the Shares and the Fair Market Value of the Shares as of the date any restrictions on the Shares lapse. In this context, "restriction" includes the right of the Company to buy back the Shares pursuant to the Repurchase Option. Participant understands that Participant may elect to be taxed at the time the Shares are purchased rather than when and as the Repurchase Option expires by filing an election under Section 83(b) of the Code with the IRS within thirty (30) days from the date of purchase. The form for making this election is attached as Exhibit B-3 hereto.

THE PARTICIPANT ACKNOWLEDGES THAT IT IS THE PARTICIPANT'S SOLE RESPONSIBILITY AND NOT THE COMPANY'S TO FILE TIMELY THE ELECTION UNDER SECTION 83(b), EVEN IF THE PARTICIPANT REQUESTS THE COMPANY OR ITS REPRESENTATIVES TO MAKE THIS FILING ON THE PARTICIPANT'S BEHALF.

7. Tax Withholding. Pursuant to such procedures as the Administrator may specify from time to time, the Company shall withhold the minimum amount required to be withheld for the payment of income, employment and other taxes which the Company determines must be withheld (the "Withholding Taxes") with respect to Shares released from the Company's Repurchase Option by, in the Administrator's discretion: (i) withholding otherwise deliverable Shares upon release from the Company's Repurchase Option having a Fair Market Value equal the amount of such Withholding Taxes, (ii) withholding the amount of such Withholding Taxes from Participant's paycheck(s), (iii) requiring Participant to make appropriate arrangements with the Company (or the Parent or Subsidiary employing or retaining Participant) for the satisfaction of all Withholding Taxes, or (iv) a combination of the foregoing. The Company shall not retain fractional Shares to

satisfy any portion of the Withholding Taxes. Accordingly, if any withholding is done through the withholding of Shares, Participant shall pay to the Company an amount in cash sufficient to satisfy the remaining Withholding Taxes due and payable as a result of the Company not retaining fractional Shares. Should the Company be unable to procure such cash amounts from Participant, Participant agrees and acknowledges that Participant is giving the Company permission to withhold from Participant's paycheck(s) an amount equal to the remaining Withholding Taxes due and payable as a result of the Company not retaining fractional Shares. Participant acknowledges and agrees that the Company may refuse to honor the exercise and refuse to deliver the Shares if such withholding amounts are not delivered at the time of purchase.

8. No Guarantee of Continued Service. PARTICIPANT ACKNOWLEDGES AND AGREES THAT THE RELEASE OF SHARES FROM THE REPURCHASE OPTION OF THE COMPANY PURSUANT TO THE VESTING SCHEDULE HEREOF IS EARNED ONLY BY CONTINUING AS A SERVICE PROVIDER AT THE WILL OF THE COMPANY (OR THE PARENT OR SUBSIDIARY EMPLOYING OR RETAINING PARTICIPANT) AND NOT THROUGH THE ACT OF BEING HIRED OR PURCHASING SHARES HEREUNDER. PARTICIPANT FURTHER ACKNOWLEDGES AND AGREES THAT THIS AGREEMENT, THE TRANSACTIONS CONTEMPLATED HEREUNDER AND THE VESTING SCHEDULE SET FORTH HEREIN DO NOT CONSTITUTE AN EXPRESS OR IMPLIED PROMISE OF CONTINUED ENGAGEMENT AS A SERVICE PROVIDER FOR THE VESTING PERIOD, FOR ANY PERIOD, OR AT ALL, AND SHALL NOT INTERFERE IN ANY WAY WITH PARTICIPANT'S RIGHT OR THE RIGHT OF THE COMPANY (OR THE PARENT OR SUBSIDIARY EMPLOYING OR RETAINING PARTICIPANT) TO TERMINATE PARTICIPANT'S RELATIONSHIP AS A SERVICE PROVIDER AT ANY TIME, WITH OR WITHOUT CAUSE.

9. Repurchase Option.

(a) In the event Participant's continuous status as a Service Provider terminates for any or no reason (including death or Disability), the Company shall, from the date of such termination (as reasonably fixed and determined by the Company), have an irrevocable, exclusive option to repurchase up to that number of Shares which constitute the Unreleased Shares (as defined in Part I of this Agreement) at the Purchase Price per share (the "Repurchase Price") (the "Repurchase Option"). The Company may exercise its Repurchase Option as to any or all of the Unreleased Shares at any time after the Participant ceases to be a Service Provider; provided, however, that without requirement of further action on the part of either party hereto, the Repurchase Option shall be deemed to have been automatically exercised as to all Unreleased Shares at 5:00 p.m. (Pacific Time) as of the date that is 60 days following the date the Participant ceases to be a Service Provider, unless the Company declines in writing to exercise its Repurchase Option prior to such time.

(b) If the Company decides not to exercise its Repurchase Option, it shall notify the Participant in writing within 60 days of the date the Participant ceases to be a Service Provider. If the Repurchase Option is exercised or deemed exercised by the Company, the Company shall deliver written notice to Participant or Participant's executor (with a copy to the Escrow Holder (as defined in Section 11)) AND, at the Company's option, (i) deliver to Participant or Participant's

executor a check in the amount of the aggregate Repurchase Price, or (ii) by the Company canceling an amount of Participant's indebtedness to the Company equal to the aggregate Repurchase Price, or (iii) by a combination of (i) and (ii) so that the combined payment and cancellation of indebtedness equals such aggregate Repurchase Price. Upon delivery of such notice and the payment of the aggregate Repurchase Price in any of the ways described above, the Company shall become the legal and beneficial owner of the Unreleased Shares being repurchased and all rights and interests therein or relating thereto, and the Company shall have the right to retain and transfer to its own name the number of Unreleased Shares being repurchased by the Company.

(c) Whenever the Company shall have the right to repurchase the Unreleased Shares hereunder, the Company may designate and assign one or more employees, officers, directors or shareholders of the Company or other persons or organizations to exercise all or a part of the Company's Repurchase Option to purchase all or a part of the Unreleased Shares. If the Fair Market Value of the Unreleased Shares to be repurchased on the date of such designation or assignment (the "Repurchase FMV") exceeds the aggregate Repurchase Price of the Unreleased Shares, then each such designee or assignee shall pay the Company cash equal to the difference between the Repurchase FMV and the aggregate Repurchase Price of Unreleased Shares to be purchased.

(d) If the Company or its assignee does not elect to exercise the Repurchase Option conferred above by giving the requisite notice within ninety (90) days following Participant's termination as a Service Provider, the Repurchase Option shall terminate.

10. Restriction on Transfer. Except for the escrow described in Section 11 or transfer of the Shares to the Company or its assignees contemplated by this Agreement, none of the Shares or any beneficial interest therein shall be transferred, encumbered or otherwise disposed of in any way until the release of such Shares from the Company's Repurchase Option in accordance with the provisions of this Agreement, other than by will or the laws of descent and distribution. Any distribution or delivery to be made to Participant under this Agreement shall, if Participant is then deceased, be made to Participant's designated beneficiary, or if no beneficiary survives Participant, to the administrator or executor of Participant's estate. Any such transferee must furnish the Company with (a) written notice of his or her status as transferee, and (b) evidence satisfactory to the Company to establish the validity of the transfer and compliance with any laws or regulations pertaining to said transfer.

11. Escrow of Shares.

(a) To ensure the availability for delivery of Participant's Unreleased Shares upon exercise of the Repurchase Option by the Company, Participant will, upon execution of this Agreement, deliver and deposit with an escrow holder designated by the Company (the "Escrow Holder") the share certificates representing the Unreleased Shares, together with the Assignment Separate from Certificate (the "Stock Assignment") duly endorsed in blank, attached hereto as Exhibit B-1. The Unreleased Shares and Stock Assignment shall be held by the Escrow Holder, pursuant to the Joint Escrow Instructions of the Company and Participant attached as Exhibit B-2 hereto, until such time as the Company's Repurchase Option expires.

(b) The Escrow Holder shall not be liable for any act it may do or omit to do with respect to holding the Unreleased Shares in escrow and while acting in good faith and in the exercise of its judgment.

(c) If the Company or any assignee exercises its Repurchase Option hereunder, the Escrow Holder, upon receipt of written notice of such option exercise from the proposed transferee, shall take all steps necessary to accomplish such transfer. Participant hereby appoints the Escrow Holder with full power of substitution, as Participant's true and lawful attorney-in-fact with irrevocable power and authority in the name and on behalf of Participant to take any action and execute all documents and instruments, including, without limitation, stock powers which may be necessary to transfer the certificate or certificates evidencing such Unreleased Shares to the Company upon such termination.

(d) When the Repurchase Option has been exercised or expires unexercised or a portion of the Shares has been released from such Repurchase Option, upon Participant's request the Escrow Holder shall promptly cause a new certificate to be issued for such released Shares and shall deliver such certificate to the Company or Participant, as the case may be.

(e) Subject to the terms hereof, Participant shall have all the rights of a shareholder with respect to such Shares while they are held in escrow, including without limitation, the right to vote the Shares and receive any cash dividends declared thereon.

(f) In the event of any merger, reorganization, consolidation, recapitalization, separation, liquidation, stock dividend, split-up, share combination, or other change in the corporate structure of the Company affecting the Common Stock, the Shares shall be increased, reduced or otherwise changed, and by virtue of any such change Participant shall in his or her capacity as owner of Unreleased Shares that have been awarded to him or her be entitled to new or additional or different shares of stock, cash or securities (other than rights or warrants to purchase securities); such new or additional or different shares, cash or securities shall thereupon be considered to be "Unreleased Shares" and shall be subject to all of the conditions and restrictions which were applicable to the Unreleased Shares pursuant to this Agreement. If Participant receives rights or warrants with respect to any Unreleased Shares, such rights or warrants may be held or exercised by Participant, provided that until such exercise any such rights or warrants and after such exercise any shares or other securities acquired by the exercise of such rights or warrants shall be considered to be Unreleased Shares and shall be subject to all of the conditions and restrictions which were applicable to the Unreleased Shares pursuant to this Agreement. The Administrator in its absolute discretion at any time may accelerate the vesting of all or any portion of such new or additional shares of stock, cash or securities, rights or warrants to purchase securities or shares or other securities acquired by the exercise of such rights or warrants.

12. Company's Right of First Refusal. Subject to Section 10, before any Shares held by Participant or any transferee (either being sometimes referred to herein as the "Holder") may be sold or otherwise transferred (including transfer by gift or operation of law), the Company or its assignee(s) shall have a right of first refusal to purchase the Shares on the terms and conditions set forth in this Section 12 (the "Right of First Refusal").

(a) Notice of Proposed Transfer. The Holder of the Shares shall deliver to the Company a written notice (the "Notice") stating: (i) the Holder's bona fide intention to sell or otherwise transfer such Shares; (ii) the name of each proposed purchaser or other transferee ("Proposed Transferee"); (iii) the number of Shares to be transferred to each Proposed Transferee; and (iv) the bona fide cash price or other consideration for which the Holder proposes to transfer the Shares (the "Offered Price"), and the Holder shall offer the Shares at the Offered Price to the Company or its assignee(s).

(b) Exercise of Right of First Refusal. At any time within thirty (30) days after receipt of the Notice, the Company and/or its assignee(s) may, by giving written notice to the Holder, elect to purchase all, but not less than all, of the Shares proposed to be transferred to any one or more of the Proposed Transferees, at the purchase price determined in accordance with subsection (c) below.

(c) Purchase Price. The purchase price ("Right of First Refusal Price") for the Shares purchased by the Company or its assignee(s) under this Section 12 shall be the Offered Price. If the Offered Price includes consideration other than cash, the cash equivalent value of the non-cash consideration shall be determined by the Board in good faith.

(d) Payment. Payment of the Right of First Refusal Price shall be made, at the option of the Company or its assignee(s), in cash (by check), by cancellation of all or a portion of any outstanding indebtedness of the Holder to the Company (or, in the case of repurchase by an assignee, to the assignee), or by any combination thereof within thirty (30) days after receipt of the Notice or in the manner and at the times set forth in the Notice.

(e) Holder's Right to Transfer. If all of the Shares proposed in the Notice to be transferred to a given Proposed Transferee are not purchased by the Company and/or its assignee(s) as provided in this Section 12, then the Holder may sell or otherwise transfer such Shares to that Proposed Transferee at the Offered Price or at a higher price, provided that such sale or other transfer is consummated within one hundred and twenty (120) days after the date of the Notice, that any such sale or other transfer is effected in accordance with any applicable securities laws and that the Proposed Transferee agrees in writing that the provisions of this Section 12 shall continue to apply to the Shares in the hands of such Proposed Transferee. If the Shares described in the Notice are not transferred to the Proposed Transferee within such period, a new Notice shall be given to the Company, and the Company and/or its assignees shall again be offered the Right of First Refusal before any Shares held by the Holder may be sold or otherwise transferred.

(f) Exception for Certain Family Transfers. Anything to the contrary contained in this Section 12 notwithstanding, the transfer of any or all of the Shares during Participant's lifetime or on Participant's death by will or intestacy to Participant's immediate family or a trust for the benefit of Participant's immediate family shall be exempt from the provisions of this Section 12. "Immediate Family" as used herein shall mean spouse, lineal descendant or antecedent, father, mother, brother or sister. In such case, the transferee or other recipient shall receive and hold the Shares so transferred subject to the provisions of this Agreement, including but not limited to this Section 12 and Section 9, and there shall be no further transfer of such Shares except in accordance with the terms of this Section 12.

(g) Termination of Right of First Refusal. The Right of First Refusal shall terminate as to any Shares upon the earlier of (i) the first sale of Common Stock of the Company to the general public, or (ii) a Change in Control in which the successor corporation has equity securities that are publicly traded.

13. Restrictive Legends and Stop-Transfer Orders.

(a) Legends. Participant understands and agrees that the Company shall cause the legends set forth below or legends substantially equivalent thereto, to be placed upon any certificate(s) evidencing ownership of the Shares together with any other legends that may be required by the Company or by state or federal securities laws:

THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 (THE "ACT") AND MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED UNLESS AND UNTIL REGISTERED UNDER THE ACT OR, IN THE OPINION OF COUNSEL SATISFACTORY TO THE ISSUER OF THESE SECURITIES, SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION IS IN COMPLIANCE THEREWITH.

THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO CERTAIN RESTRICTIONS ON TRANSFER, A RIGHT OF FIRST REFUSAL, AND A REPURCHASE OPTION HELD BY THE ISSUER OR ITS ASSIGNEE(S) AS SET FORTH IN THE RESTRICTED STOCK PURCHASE AGREEMENT BETWEEN THE ISSUER AND THE ORIGINAL HOLDER OF THESE SHARES, A COPY OF WHICH MAY BE OBTAINED AT THE PRINCIPAL OFFICE OF THE ISSUER. SUCH TRANSFER RESTRICTIONS, RIGHT OF FIRST REFUSAL AND REPURCHASE OPTION ARE BINDING ON TRANSFEREES OF THESE SHARES.

THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO RESTRICTIONS ON TRANSFER FOR A PERIOD OF TIME FOLLOWING THE EFFECTIVE DATE OF THE UNDERWRITTEN PUBLIC OFFERING OF THE COMPANY'S SECURITIES SET FORTH IN AN AGREEMENT BETWEEN THE ISSUER AND THE ORIGINAL HOLDER OF THESE SHARES AND MAY NOT BE SOLD OR OTHERWISE DISPOSED OF BY THE HOLDER PRIOR TO THE EXPIRATION OF SUCH PERIOD WITHOUT THE CONSENT OF THE COMPANY OR THE MANAGING UNDERWRITER.

(b) Stop-Transfer Notices. Participant agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) Refusal to Transfer. The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

14. Notices. Any notice, demand or request required or permitted to be given by either the Company or Participant pursuant to the terms of this Agreement shall be in writing and shall be deemed given when delivered personally or deposited in the U.S. mail, First Class with postage prepaid, and addressed to the parties at the addresses of the parties set forth at the end of this Agreement or such other address as a party may request by notifying the other in writing.

Any notice to the Escrow Holder shall be sent to the Company's address with a copy to the other party not sending the notice.

15. No Waiver. Either party's failure to enforce any provision or provisions of this Agreement shall not in any way be construed as a waiver of any such provision or provisions, nor prevent that party from thereafter enforcing each and every other provision of this Agreement. The rights granted both parties herein are cumulative and shall not constitute a waiver of either party's right to assert all other legal remedies available to it under the circumstances.

16. Successors and Assigns. The Company may assign any of its rights under this Agreement to single or multiple assignees, and this Agreement shall inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer herein set forth, this Agreement shall be binding upon Participant and his or her heirs, executors, administrators, successors and assigns. The rights and obligations of Participant under this Agreement may only be assigned with the prior written consent of the Company.

17. Interpretation. Any dispute regarding the interpretation of this Agreement shall be submitted by Participant or by the Company forthwith to the Administrator, which shall review such dispute at its next regular meeting. The resolution of such a dispute by the Administrator shall be final and binding on all parties.

18. Additional Documents. Participant agrees upon request to execute any further documents or instruments necessary or desirable to carry out the purposes or intent of this Agreement.

19. Governing Law; Severability. This Agreement is governed by the internal substantive laws, but not the choice of law rules, of California. In the event that any provision hereof becomes or is declared by a court of competent jurisdiction to be illegal, unenforceable or void, this Agreement shall continue in full force and effect.

20. Entire Agreement. The Plan is incorporated herein by reference. The Plan and this Agreement (including the exhibits referenced herein) constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof, and may not be modified adversely to the Participant's interest except by means of a writing signed by the Company and Participant.

Participant acknowledges receipt of a copy of the Plan and represents that he or she is familiar with the terms and provisions thereof, and hereby accepts this Agreement subject to all of the terms and provisions thereof. Participant has reviewed the Plan and this Agreement in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Agreement and fully understands all provisions of this Agreement. Participant hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Administrator upon any questions arising under the Plan or this Agreement. Participant further agrees to notify the Company upon any change in the residence address indicated below.

PARTICIPANT	ALLAKOS INC.
Signature	By
Print Name	Print Name
	Title
Residence Address	

EXHIBIT A

INVESTMENT REPRESENTATION STATEMENT

PARTICIPANT	:	
COMPANY	:	ALLAKOS INC.
SECURITY	:	COMMON STOCK
AMOUNT	:	
DATE	:	

In connection with the purchase of the above-listed Securities, the undersigned Participant represents to the Company the following:

(a) Participant is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Securities. Participant is acquiring these Securities for investment for Participant's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the Securities Act of 1933, as amended (the "Securities Act").

(b) Participant acknowledges and understands that the Securities constitute "restricted securities" under the Securities Act and have not been registered under the Securities Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Participant's investment intent as expressed herein. In this connection, Participant understands that, in the view of the Securities and Exchange Commission, the statutory basis for such exemption may be unavailable if Participant's representation was predicated solely upon a present intention to hold these Securities for the minimum capital gains period specified under tax statutes, for a deferred sale, for or until an increase or decrease in the market price of the Securities, or for a period of one year or any other fixed period in the future. Participant further understands that the Securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. Participant further acknowledges and understands that the Company is under no obligation to register the Securities. Participant understands that the certificate evidencing the Securities shall be imprinted with any legend required under applicable state securities laws.

(c) Participant is familiar with the provisions of Rule 701 and Rule 144, each promulgated under the Securities Act, which, in substance, permit limited public resale of "restricted securities" acquired, directly or indirectly from the issuer thereof, in a non-public offering subject to the satisfaction of certain conditions. Rule 701 provides that if the issuer qualifies under Rule 701 at the time of the grant of the Restricted Stock Award to Participant, the exercise shall be exempt from registration under the Securities Act. In the event the Company becomes subject to the reporting requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, ninety (90) days thereafter (or such longer period as any market stand-off agreement may require) the Securities

exempt under Rule 701 may be resold, subject to the satisfaction of the applicable conditions specified by Rule 144, including in the case of affiliates (1) the availability of certain public information about the Company, (2) the amount of Securities being sold during any three (3) month period not exceeding specified limitations, (3) the resale being made in an unsolicited "broker's transaction", transactions directly with a "market maker" or "riskless principal transactions" (as those terms are defined under the Securities Exchange Act of 1934) and (4) the timely filing of a Form 144, if applicable.

In the event that the Company does not qualify under Rule 701 at the time of grant of the Restricted Stock Award, then the Securities may be resold in certain limited circumstances subject to the provisions of Rule 144, which may require (i) the availability of current public information about the Company; (ii) the resale to occur more than a specified period after the purchase and full payment (within the meaning of Rule 144) for the Securities; and (iii) in the case of the sale of Securities by an affiliate, the satisfaction of the conditions set forth in sections (2), (3) and (4) of the paragraph immediately above.

(d) Participant further understands that in the event all of the applicable requirements of Rule 701 or 144 are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption shall be required; and that, notwithstanding the fact that Rules 144 and 701 are not exclusive, the Staff of the Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rules 144 or 701 shall have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk. Participant understands that no assurances can be given that any such other registration exemption shall be available in such event.

PARTICIPANT

_____

Signature

_____

Print Name

_____

Date

EXHIBIT B-1

ASSIGNMENT SEPARATE FROM CERTIFICATE

FOR VALUE RECEIVED I, , hereby sell, assign and transfer unto Allakos Inc. shares of the Common Stock of Allakos Inc. standing in my name on the books of said corporation represented by Certificate No. herewith and do hereby irrevocably constitute and appoint to transfer the said stock on the books of the within named corporation with full power of substitution in the premises.

This Stock Assignment may be used only in accordance with the Restricted Stock Purchase Agreement between Allakos Inc. and the undersigned dated , (the "Agreement").

Dated: _____,____ Signature:_____

INSTRUCTIONS: Please do not fill in any blanks other than the signature line. The purpose of this assignment is to enable the Company to exercise its "repurchase option," as set forth in the Agreement, without requiring additional signatures on the part of the Participant.

EXHIBIT B-2

JOINT ESCROW INSTRUCTIONS

_____, ____

Corporate Secretary
Allakos Inc.
75 Shoreway Road
San Carlos, CA 94070

Dear _____:

As Escrow Agent for both Allakos Inc. (the "Company"), and the undersigned purchaser of stock of the Company (the "Participant"), you are hereby authorized and directed to hold the documents delivered to you pursuant to the terms of that certain Restricted Stock Purchase Agreement (the "Agreement") between the Company and the undersigned, in accordance with the following instructions:

1. In the event the Company and/or any assignee of the Company (referred to collectively for convenience herein as the "Company") exercises the Company's repurchase option set forth in the Agreement, the Company shall give to Participant and you a written notice specifying the number of shares of stock to be purchased, the purchase price, and the time for a closing hereunder at the principal office of the Company. Participant and the Company hereby irrevocably authorize and direct you to close the transaction contemplated by such notice in accordance with the terms of said notice.

2. At the closing, you are directed (a) to date the stock assignments necessary for the transfer in question, (b) to fill in the number of shares being transferred, and (c) to deliver the stock assignments, together with the certificate evidencing the shares of stock to be transferred, to the Company or its assignee, against the simultaneous delivery to you of the purchase price (by cash, a check, or some combination thereof) for the number of shares of stock being purchased pursuant to the exercise of the Company's repurchase option.

3. Participant irrevocably authorizes the Company to deposit with you any certificates evidencing shares of stock to be held by you hereunder and any additions and substitutions to said shares as defined in the Agreement. Participant does hereby irrevocably constitute and appoint you as Participant's attorney-in-fact and agent for the term of this escrow to execute with respect to such securities all documents necessary or appropriate to make such securities negotiable and to complete any transaction herein contemplated, including but not limited to the filing with any applicable state blue sky authority of any required applications for consent to, or notice of transfer of, the securities. Subject to the provisions of this paragraph 3, Participant shall exercise all rights and privileges of a stockholder of the Company while the stock is held by you.

4. Upon written request of the Participant, but no more than once per calendar year, unless the Company's repurchase option has been exercised, you shall deliver to Participant a certificate or certificates representing so many shares of stock as are not then subject to the Company's repurchase option. Within one hundred and twenty (120) days after cessation of Participant's continuous employment by or services to the Company, or any parent or subsidiary of the Company, you shall deliver to Participant a certificate or certificates representing the aggregate number of shares held or issued pursuant to the Agreement and not purchased by the Company or its assignees pursuant to exercise of the Company's repurchase option.

5. If at the time of termination of this escrow you should have in your possession any documents, securities, or other property belonging to Participant, you shall deliver all of the same to Participant and shall be discharged of all further obligations hereunder.

6. Your duties hereunder may be altered, amended, modified or revoked only by a writing signed by all of the parties hereto.

7. You shall be obligated only for the performance of such duties as are specifically set forth herein and may rely and shall be protected in relying or refraining from acting on any instrument reasonably believed by you to be genuine and to have been signed or presented by the proper party or parties. You shall not be personally liable for any act you may do or omit to do hereunder as Escrow Agent or as attorney-in-fact for Participant while acting in good faith, and any act done or omitted by you pursuant to the advice of your own attorneys shall be conclusive evidence of such good faith.

8. You are hereby expressly authorized to disregard any and all warnings given by any of the parties hereto or by any other person or corporation, excepting only orders or process of courts of law and are hereby expressly authorized to comply with and obey orders, judgments or decrees of any court. In case you obey or comply with any such order, judgment or decree, you shall not be liable to any of the parties hereto or to any other person, firm or corporation by reason of such compliance, notwithstanding any such order, judgment or decree being subsequently reversed, modified, annulled, set aside, vacated or found to have been entered without jurisdiction.

9. You shall not be liable in any respect on account of the identity, authorities or rights of the parties executing or delivering or purporting to execute or deliver the Agreement or any documents or papers deposited or called for hereunder.

10. You shall not be liable for the outlawing of any rights under the Statute of Limitations with respect to these Joint Escrow Instructions or any documents deposited with you.

11. You shall be entitled to employ such legal counsel and other experts as you may deem necessary properly to advise you in connection with your obligations hereunder, may rely upon the advice of such counsel, and may pay such counsel reasonable compensation therefor.

12. Your responsibilities as Escrow Agent hereunder shall terminate if you shall cease to be an officer or agent of the Company or if you shall resign by written notice to each party. In the event of any such termination, the Company shall appoint a successor Escrow Agent.

13. If you reasonably require other or further instruments in connection with these Joint Escrow Instructions or obligations in respect hereto, the necessary parties hereto shall join in furnishing such instruments.

14. It is understood and agreed that should any dispute arise with respect to the delivery and/or ownership or right of possession of the securities held by you hereunder, you are authorized and directed to retain in your possession without liability to anyone all or any part of said securities until such disputes shall have been settled either by mutual written agreement of the parties concerned or by a final order, decree or judgment of a court of competent jurisdiction after the time for appeal has expired and no appeal has been perfected, but you shall be under no duty whatsoever to institute or defend any such proceedings.

15. Any notice required or permitted hereunder shall be given in writing and shall be deemed effectively given upon personal delivery or upon deposit in the United States Post Office, by registered or certified mail with postage and fees prepaid, addressed to each of the other parties thereunto entitled at the following addresses or at such other addresses as a party may designate by ten (10) days advance written notice to each of the other parties hereto.

16. By signing these Joint Escrow Instructions, you become a party hereto only for the purpose of said Joint Escrow Instructions; you do not become a party to the Agreement.

17. This instrument shall be binding upon and inure to the benefit of the parties hereto, and their respective successors and permitted assigns.

18. These Joint Escrow Instructions shall be governed by the internal substantive laws, but not the choice of law rules, of California.

PARTICIPANT

_____
Signature

_____
Print Name

_____

_____
Residence Address

ESCROW AGENT

_____
Corporate Secretary

Dated:_____

ALLAKOS INC.

_____
By

_____
Print Name

_____
Title

EXHIBIT B-3

ELECTION UNDER SECTION 83(b)
OF THE INTERNAL REVENUE CODE OF 1986

The undersigned taxpayer hereby elects, pursuant to Sections 55 and 83(b) of the Internal Revenue Code of 1986, as amended, to include in taxpayer's gross income or alternative minimum taxable income, as the case may be, for the current taxable year the amount of any compensation taxable to taxpayer in connection with taxpayer's receipt of the property described below.

1. The name, address, taxpayer identification number and taxable year of the undersigned are as follows:

   NAME: _____ SPOUSE: _____

   ADDRESS: _____

   _____

   TAXPAYER IDENTIFICATION NO.: _____ TAXABLE YEAR: _____

2. The property with respect to which the election is made is described as follows: _____ shares (the "Shares") of the Common Stock of Allakos Inc. (the "Company").

3. The date on which the property was transferred is:_____ ,_____.

4. The property is subject to the following restrictions:

   The Shares may not be transferred and are subject to forfeiture under the terms of an agreement between the taxpayer and the Company. These restrictions lapse upon the satisfaction of certain conditions contained in such agreement.

5. The Fair Market Value at the time of transfer, determined without regard to any restriction other than a restriction which by its terms shall never lapse, of such property is: $_____.

6. The amount (if any) paid for such property is: $_____.

The undersigned has submitted a copy of this statement to the person for whom the services were performed in connection with the undersigned's receipt of the above-described property. The transferee of such property is the person performing the services in connection with the transfer of said property.

The undersigned understands that the foregoing election may not be revoked except with the consent of the Commissioner.

Dated: _____, _____

_____
Taxpayer

The undersigned spouse of taxpayer joins in this election.

Dated: _____, _____

_____
Spouse of Taxpayer

LEASE AGREEMENT

THIS LEASE AGREEMENT (this "**Lease**") is made this 1st day of May, 2013, between **ARE-SAN FRANCISCO NO. 29, LLC**, a Delaware limited liability company ("**Landlord**"), and **ALLAKOS, INC.**, a Delaware corporation ("**Tenant**").

Building:	75 Shoreway Drive, San Carlos, California
Premises:	That portion of the Project commonly known as a portion of Suite A, containing approximately 3,380 rentable square feet, as determined by Landlord, as shown on **Exhibit A**.
Project:	The real property on which the Building in which the Premises are located, together with all improvements thereon and appurtenances thereto as described on **Exhibit B**.
Base Rent:	$2.50 per rentable square foot of the Premises per month, subject to adjustment pursuant to Sections 3(a) and 4 of this Lease.

Rentable Area of Premises: 3,380 sq. ft.

Rentable Area of Building: 37,356 sq. ft.

Building's Share of Project: 45.12%

Rentable Area of Project: 82,796 sq. ft.

Tenant's Share of Operating Expenses of Building: 9.05%

Tenant's Share of Operating Expenses of Project: 4.08%

Security Deposit: $8,450

Rent Adjustment Percentage: 3%

Base Term:	Beginning on the Commencement Date and ending 38 months after the Commencement Date.
Permitted Use:	Research and development laboratory, related office and other related uses consistent with the character of the Project and otherwise in compliance with the provisions of Section 7 hereof.

Address for Rent Payment:
P.O. Box 975383
Dallas, TX 75397-5383

Landlord's Notice Address:
385 E. Colorado Boulevard, Suite 299
Pasadena, CA 91101
Attention: Corporate Secretary

Tenant's Notice Address:
before Commencement Date:
7400 Paseo Padre Parkway
Fremont, CA 94555
Attention: Chief Executive Officer

Tenant's Notice Address:
after Commencement Date:
75 Shoreway Drive, Suite A
San Carlos, CA 94070
Attention: Chief Executive Officer

The following Exhibits and Addenda are attached hereto and incorporated herein by this reference:

☒ **EXHIBIT A** - PREMISES DESCRIPTION
☒ **EXHIBIT B** - DESCRIPTION OF PROJECT
☒ **EXHIBIT C** - LANDLORD'S WORK
☒ **EXHIBIT D** - COMMENCEMENT DATE
☒ **EXHIBIT E** - RULES AND REGULATIONS
☒ **EXHIBIT F** - TENANT'S PERSONAL PROPERTY
☒ **EXHIBIT G** - SHARED SUITE AREAS

1. **Lease of Premises**. Upon and subject to all of the terms and conditions hereof, Landlord hereby leases the Premises to Tenant and Tenant hereby leases the Premises from Landlord. The portions of the Project which are for the non-exclusive use of tenants of the Project, are collectively referred to herein as the "**Common Areas**." Tenant shall have the non-exclusive right to use the Common Areas in common with the other tenants in the Project. Landlord reserves the right to modify Common Areas, provided that such modifications do not materially adversely affect Tenant's use of the Premises for the Permitted Use and provided such modifications do not materially increase the obligations or materially decrease the rights of Tenant under this Lease.

2. **Delivery; Acceptance of Premises; Commencement Date**. Landlord shall deliver the Premises ("**Delivery**" or "**Deliver**") to Tenant 1 business day after the mutual execution and delivery of this Lease by the parties.

The "**Commencement Date**" shall be the date that Landlord Delivers the Premises to Tenant in vacant, broom clean condition. The "**Rent Commencement Date**" shall be the date that is 2 months after the Commencement Date. Upon request of Landlord, Tenant shall execute and deliver a written acknowledgment of the Commencement Date, the Rent Commencement Date and the expiration date of the Term when such are established in the form of the "Acknowledgement of Commencement Date" attached to this Lease as **Exhibit D**; provided, however, Tenant's failure to execute and deliver such acknowledgment shall not affect Landlord's rights hereunder. The "**Term**" of this Lease shall be the Base Term, as defined above on the first page of this Lease and any Extension Terms which Tenant may elect pursuant to Section 39 hereof.

Landlord shall perform items (i) and (ii) of Landlord's Work (described below) within a reasonable period after the Commencement Date and shall perform item (iii) of Landlord's Work within a reasonable period after Tenant notifies Landlord in writing which items listed on **Exhibit C** designated for Tenant that Tenant has elected for Landlord to perform. Landlord shall cause Landlord's Work to be performed in a good and workmanlike manner, in accordance with Legal Requirements and shall use reasonable efforts not to unreasonably interfere with Tenant's use of the Premises during the performance of Landlord's Work pursuant to this paragraph. Tenant acknowledges that Landlord shall require access to the Premises after the Commencement Date in order to complete Landlord's Work. Landlord and its contractors and agents shall have the right to enter the Premises to complete Landlord's Work upon reasonable prior written notice to Tenant and Tenant shall reasonably cooperate with Landlord in connection with the same. Tenant acknowledges that Landlord's completion of Landlord's Work may adversely affect Tenant's use and occupancy of the Premises. Tenant waives all claims against Landlord in connection with the construction of Landlord's Work in accordance with this paragraph including, without limitation, claims for rent abatement. As used herein, the term "**Landlord's Work**" shall mean (i) the installation of the existing glasswash, the cost of which shall be paid for by Landlord, (ii) replacement of the existing dishwasher in the kitchen, the cost of which shall be paid for by Landlord and (iii) the work described on **Exhibit C** which Tenant elects in writing on or before the date that is 30 days after the Commencement Date to have Landlord perform. Landlord shall be responsible for up to $5,000 of the cost of Landlord's Work described on **Exhibit C** elected by Tenant. Tenant shall be responsible for any costs incurred for such Landlord's Work elected by Tenant in excess of $5,000 (as reflected in the budget shown on **Exhibit C**) and for any additional costs of Landlord's Work in excess of $5,000 resulting from delays caused by Tenant or changes made by Tenant to the scope of Landlord's Work, which excess costs shall be payable by Tenant within 10 business days after receipt written request therefor from Landlord. Landlord shall be responsible for increases in the cost of Landlord's Work shown in the budget attached as **Exhibit C** not resulting from delays caused by Tenant or changes made by Tenant to the scope of Landlord's Work.

Omniox, Inc., a Delaware corporation ("**Omniox**"), is the tenant under that certain Lease Agreement between Landlord and Omniox dated as of even date herewith ("**Omniox Lease**"), pursuant to which Landlord leases to Omniox and Omniox leases from Landlord approximately 6,762 rentable square feet of space in the Building immediately adjacent to the Premises, as described in the Omniox Lease

("**Omniox Premises**"). Tenant acknowledges that the Premises and the Omniox Premises are not demised and that Omniox may have the physical ability to access the Premises during the Term and Tenant may have the physical ability to access the Omniox Premises during the Term. Tenant further acknowledges and agrees that Landlord has no obligation to construct any improvements to separate the Premises from the Omniox Premises. Tenant shall not enter onto the Omniox Premises without express permission from Omniox and shall not take any action or fail to take any action which would interfere with Omniox's use of the Omniox Premises. Landlord shall have no liability for any Claims suffered by Tenant in connection with any entry by Omniox into the Premises. If the Omniox Lease is terminated at any time during the Term of this Lease, Tenant acknowledges that Landlord may lease the Omniox Premises to any third party acceptable to Landlord, in its sole and absolute discretion ("**Third Party Tenant**"). Tenant further acknowledges and agrees that (a) Landlord has no obligation to construct any improvements to separate the Premises from the Omniox Premises in connection with its lease of the Omniox Premises to a Third Party Tenant, (b) such Third Party Tenant will have the physical ability to access the Premises during the Term, and (c) any Third Party Tenant shall have the right to use the Shared Suite Area (as defined in Section 40). If Landlord leases the Omniox Premises to a Third Party Tenant, Tenant shall not enter onto the Omniox Premises without express permission from the Third Party Tenant and shall not take any action or fail to take any action which would interfere with the Third Party Tenant's use of the Omniox Premises. Landlord shall have no liability for any Claims suffered by Tenant in connection with any entry by any Third Party Tenant into the Premises.

Except as set forth in this Lease: (i) Tenant shall accept the Premises in their "as-is" condition as of the Commencement Date, subject to all applicable Legal Requirements (as defined in Section 7 hereof); (ii) Landlord shall have no obligation for any defects in the Premises; and (iii) Tenant's taking possession of the Premises shall be conclusive evidence that Tenant accepts the Premises and that the Premises were in good condition at the time possession was taken. Any occupancy of the Premises by Tenant before the Commencement Date shall be subject to all of the terms and conditions of this Lease, excluding the obligation to pay Base Rent and Operating Expenses.

For the period of 60 consecutive days after the Commencement Date, Landlord shall, at its sole cost and expense (which shall not constitute an Operating Expense), be responsible for any repairs that are required to be made to the Building or Building Systems (as defined in Section 13) serving the Premises only, unless Tenant or any Tenant Party was responsible for the cause of such repair, in which case Tenant shall pay the cost.

Tenant agrees and acknowledges that, except as otherwise set forth in this Lease, neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the condition of all or any portion of the Premises or the Project, and/or the suitability of the Premises or the Project for the conduct of Tenant's business, and Tenant waives any implied warranty that the Premises or the Project are suitable for the Permitted Use. This Lease constitutes the complete agreement of Landlord and Tenant with respect to the subject matter hereof and supersedes any and all prior representations, inducements, promises, agreements, understandings and negotiations which are not contained herein. Landlord in executing this Lease does so in reliance upon Tenant's representations, warranties, acknowledgments and agreements contained herein.

3. **Rent**.

(a) **Base Rent**. Base Rent for the 3rd month of the Base Term and the Security Deposit shall be due and payable on delivery of an executed copy of this Lease to Landlord. Tenant shall pay to Landlord in advance, without demand, abatement, deduction or set-off, monthly installments of Base Rent on or before the first day of each calendar month during the Term hereof after the Rent Commencement Date, in lawful money of the United States of America, at the office of Landlord for payment of Rent set forth above, or to such other person or at such other place as Landlord may from time to time designate in writing. Payments of Base Rent for any fractional calendar month shall be prorated. The obligation of Tenant to pay Base Rent and other sums to Landlord and the obligations of Landlord under this Lease are independent obligations. Tenant shall have no right at any time to abate, reduce, or set-off any Rent (as defined in Section 5) due hereunder except for any abatement as may be expressly provided in this Lease.

(b) **Additional Rent**. In addition to Base Rent, Tenant agrees to pay to Landlord as additional rent ("**Additional Rent**"): (i) Tenant's Share of "Operating Expenses" (as defined in Section 5), and (ii) any and all other amounts Tenant assumes or agrees to pay under the provisions of this Lease, including, without limitation, any and all other sums that may become due by reason of any default of Tenant or failure to comply with the agreements, terms, covenants and conditions of this Lease to be performed by Tenant, after any applicable notice and cure period.

4. **Base Rent Adjustments**. Base Rent shall be increased on the annual anniversary of the first day of the first full month during the Term of this Lease (each an "**Adjustment Date**") by multiplying the Base Rent payable immediately before such Adjustment Date by the Rent Adjustment Percentage and adding the resulting amount to the Base Rent payable immediately before such Adjustment Date. Base Rent, as so adjusted, shall thereafter be due as provided herein. Base Rent adjustments for any fractional calendar month shall be prorated.

5. **Operating Expense Payments**. Landlord shall deliver to Tenant a written estimate of Operating Expenses for each calendar year during the Term (the "**Annual Estimate**"), which may be revised by Landlord from time to time during such calendar year. Commencing on the Commencement Date and continuing on the first day of each month during the Term, Tenant shall pay Landlord an amount equal to 1/12th of Tenant's Share of the Annual Estimate. Payments for any fractional calendar month shall be prorated.

The term "**Operating Expenses**" means all costs and expenses of any kind or description whatsoever incurred or accrued each calendar year by Landlord with respect to the Building (including the Building's Share of all costs and expenses of any kind or description incurred or accrued by Landlord with respect to the Project which are not specific to the Building or any other building located in the Project) (including, without duplication, Taxes (as defined in Section 9), capital repairs and improvements amortized over the lesser of 10 years and the useful life of such capital items, and the costs of Landlord's third party property manager (not to exceed 3% of Base Rent) or, if there is no third party property manager, administration rent in the amount of 3.0% of Base Rent), excluding only:

(a) the original construction costs of the Project and renovation prior to the date of the Lease and costs of correcting defects in such original construction or renovation;

(b) capital expenditures for expansion of the Project and other capital expenditures to the extent not Approved Capital Expenses;

(c) any costs incurred to remove, study, test, remediate or otherwise related to the presence of Hazardous Materials in or about the Building or the Project, which Hazardous Materials Tenant proves (i) existed prior to the Commencement Date, (ii) originated from any separately demised tenant space within the Project other than the Premises or (iii) were not brought upon, kept, used, stored, handled, treated, generated in, or released or disposed of from, the Project by Tenant or any Tenant Party;

(d) interest, principal payments of Mortgage (as defined in Section 27) debts of Landlord, financing costs and amortization of funds borrowed by Landlord, whether secured or unsecured, and all payments or base rent (but not taxes or operating expenses) under any ground lease or other underlying lease of all or any portion of the Project;

(e) depreciation of the Project and capital reserves (except for capital improvements amortized as set forth above, the cost of which are includable in Operating Expenses);

(f) advertising, legal and space planning expenses and leasing commissions and other costs and expenses incurred in procuring and leasing space to tenants for the Project, including any leasing office maintained in the Project, free rent and construction allowances for tenants;

(g) legal and other expenses incurred in the negotiation or enforcement of leases;

(h) completing, fixturing, improving, renovating, painting, redecorating or other work, which Landlord pays for or performs for other tenants within their premises, and costs of correcting defects in such work;

(i) costs to be reimbursed by other tenants of the Project or Taxes to be paid directly by Tenant or other tenants of the Project, whether or not actually paid;

(j) salaries, wages, benefits and other compensation paid to officers and employees of Landlord who are not assigned in whole or in part to the operation, management, maintenance or repair of the Project;

(k) general organizational, administrative and overhead costs relating to maintaining Landlord's existence, either as a corporation, partnership, or other entity, including general corporate, legal and accounting expenses;

(l) costs (including attorneys' fees and costs of settlement, judgments and payments in lieu thereof) incurred in connection with disputes with tenants, other occupants, or prospective tenants, and costs and expenses, including legal fees, incurred in connection with negotiations or disputes with employees, consultants, management agents, leasing agents, purchasers or mortgagees of the Building;

(m) costs incurred by Landlord due to the violation by Landlord, its employees, agents or contractors or any tenant of the terms and conditions of any lease of space in the Project or any Legal Requirement (as defined in Section 7);

(n) penalties, fines or interest incurred as a result of Landlord's inability or failure to make payment of Taxes and/or to file any tax or informational returns when due, or from Landlord's failure to make any payment of Taxes required to be made by Landlord hereunder before delinquency;

(o) overhead and profit increment paid to Landlord or to subsidiaries or affiliates of Landlord for goods and/or services in or to the Project to the extent the same exceeds the costs of such goods and/or services rendered by unaffiliated third parties on a competitive basis;

(p) costs of Landlord's charitable or political contributions, or of fine art maintained at the Project;

(q) costs in connection with services (including electricity), items or other benefits of a type which are not standard for the Project and which are not available to Tenant without specific charges therefor, but which are provided to another tenant or occupant of the Project, whether or not such other tenant or occupant is specifically charged therefor by Landlord;

(r) costs incurred in the sale or refinancing of the Project;

(s) net income taxes of Landlord or the owner of any interest in the Project, franchise, capital stock, gift, estate or inheritance taxes or any federal, state or local documentary taxes imposed against the Project or any portion thereof or interest therein;

(t) any expenses otherwise includable within Operating Expenses to the extent actually reimbursed by persons other than tenants of the Project under leases for space in the Project;

(u) costs incurred in connection with the operation of any parking concession within the Project; and

(v) costs incurred in connection with the performance of alterations or modifications to the Project (other than the Premises and/or as a result of Alterations in both cases for which Tenant shall be solely responsible, subject to Section 7) that are required solely due to the non-compliance of the Project with Legal Requirements applicable to the Project (other than the Premises and/or as a result of Alterations in both cases for which Tenant shall be solely responsible, subject to Section 7) as of the Commencement Date.

Notwithstanding anything to the contrary contained in this Lease, Tenant's Share of each earthquake deductible or occurrence of uninsured earthquake damage affecting to Premises shall not exceed $4.50 per rentable square foot of the Premises with respect to which Tenant is then obligated to pay Base Rent under this Lease (the "**Initial Cap**"). On each annual anniversary of the Commencement Date, the Initial Cap shall be reduced by $1.50 per rentable square foot of the Premises with respect to which Tenant is then obligated to pay Base Rent under this Lease. Following earthquake damage to the Project, Tenant shall pay Tenant's Share of any such deductible or uninsured damage in equal monthly installments (not to exceed the Initial Cap) amortized over the remaining balance of the Base Term of the Lease.

Within 90 days after the end of each calendar year (or such longer period as may be reasonably required), Landlord shall furnish to Tenant a statement (an "**Annual Statement**") showing in reasonable detail: (a) the total and Tenant's Share of actual Operating Expenses for the previous calendar year, and (b) the total of Tenant's payments in respect of Operating Expenses for such year. If Tenant's Share of actual Operating Expenses for such year exceeds Tenant's payments of Operating Expenses for such year, the excess shall be due and payable by Tenant as Rent within 30 days after delivery of such Annual Statement to Tenant. If Tenant's payments of Operating Expenses for such year exceed Tenant's Share of actual Operating Expenses for such year Landlord shall pay the excess to Tenant within 30 days after delivery of such Annual Statement, except that after the expiration, or earlier termination of the Term or if Tenant is delinquent in its obligation to pay Rent, Landlord shall pay the excess to Tenant after deducting all other amounts due Landlord.

The Annual Statement shall be final and binding upon Tenant unless Tenant, within 45 days after Tenant's receipt thereof, shall contest any item therein by giving written notice to Landlord, specifying each item contested and the reason therefor. If, during such 45 day period, Tenant reasonably and in good faith questions or contests the accuracy of Landlord's statement of Tenant's Share of Operating Expenses, Landlord will provide Tenant with access to Landlord's books and records relating to the operation of the Project and such information as Landlord reasonably determines to be responsive to Tenant's questions (the "**Expense Information**"). If after Tenant's review of such Expense Information, Landlord and Tenant cannot agree upon the amount of Tenant's Share of Operating Expenses, then Tenant shall have the right to have an independent public accounting firm selected by Tenant from among the 4 largest in the United States, working pursuant to a fee arrangement other than a contingent fee (at Tenant's sole cost and expense) and approved by Landlord (which approval shall not be unreasonably withheld or delayed), audit and/or review the Expense Information for the year in question (the "**Independent Review**"). The results of any such Independent Review shall be binding on Landlord and Tenant. If the Independent Review shows that the payments actually made by Tenant with respect to Operating Expenses for the calendar year in question exceeded Tenant's Share of Operating Expenses for such calendar year, Landlord shall at Landlord's option either (i) credit the excess amount to the next succeeding installments of estimated Operating Expenses or (ii) pay the excess to Tenant within 30 days after delivery of such statement, except that after the expiration or earlier termination of this Lease or if Tenant is delinquent in its obligation to pay Rent, Landlord shall pay the excess to Tenant after deducting all other amounts due Landlord. If the Independent Review shows that Tenant's payments with respect to Operating Expenses for such calendar year were less than Tenant's Share of Operating Expenses for the calendar year, Tenant shall pay the deficiency to Landlord within 30 days after delivery of such statement.

If the Independent Review shows that Tenant has overpaid with respect to Operating Expenses by more than 5% then Landlord shall reimburse Tenant for all costs incurred by Tenant for the Independent Review. Tenant shall treat the results of each Independent Review as confidential and shall not disclose any information regarding such Independent Review to any other tenants; provided, however, that Tenant may disclose such information to its accountants, attorneys and real estate consultants and to governmental authorities as required by Legal Requirements and in connection with any litigation, arbitration or similar proceeding. Operating Expenses for the calendar years in which Tenant's obligation to share therein begins and ends shall be prorated. Notwithstanding anything set forth herein to the contrary, if the Building is not at least 95% occupied on average during any year of the Term, Tenant's Share of Operating Expenses for such year shall be computed as though the Building had been 95% occupied on average during such year.

"**Tenant's Share**" shall be the percentage set forth on the first page of this Lease as Tenant's Share as reasonably adjusted by Landlord for changes in the physical size of the Premises or the Project occurring thereafter. If Landlord has a reasonable basis for doing so, Landlord may equitably increase Tenant's Share for any item of expense or cost reimbursable by Tenant that relates to a repair, replacement, or service that benefits only the Premises or only a portion of the Project that includes the Premises or that varies with occupancy or use. Notwithstanding anything to the contrary contained herein, Tenant's Share of Operating Expenses with respect to the Shared Suite Area (as defined in Section 40 shall be 33.33%, which Tenant's Share of Operating Expenses with respect to the Shared Suite Area shall be subject to further adjustment for changes in the physical size of the Shared Suite Area or the Premises occurring after the date of this Lease, and may be equitably increased by Landlord for any item of expense or cost reimbursable that is specific to Tenant or that varies with occupancy or use or to address variations in occupancy or use of the Shared Suite A Area among Tenant and other tenants of Suite A. Base Rent, Tenant's Share of Operating Expenses and all other amounts payable by Tenant to Landlord hereunder are collectively referred to herein as "**Rent**."

6. **Security Deposit**. The Security Deposit shall be held by Landlord without obligation for interest thereon as security for the performance of Tenant's obligations under this Lease. The Security Deposit is not an advance rental deposit or a measure of Landlord's damages in case of Tenant's default. Upon each occurrence of a Default (as defined in Section 20), Landlord may use all or part of the Security Deposit to pay delinquent payments due under this Lease, future rent damages under California Civil Code Section 1951.2, and the cost of any damage, injury, expense or liability caused by such Default, without prejudice to any other remedy provided herein or provided by law. Landlord's right to use the Security Deposit under this Section 6 includes the right to use the Security Deposit to pay future rent damages following the termination of this Lease pursuant to Section 21(c) below. Upon any use of all or any portion of the Security Deposit, Tenant shall pay Landlord on demand the amount that will restore the Security Deposit to its original amount. Upon bankruptcy or other debtor-creditor proceedings against Tenant, the Security Deposit shall be deemed to be applied first to the payment of Rent and other charges due Landlord for periods prior to the filing of such proceedings. Landlord's obligation respecting the Security Deposit is that of a debtor, not a trustee; no interest shall accrue thereon. The Security Deposit shall be the property of Landlord, but shall be paid to Tenant when Tenant's obligations under this Lease have been completely fulfilled. Landlord shall be released from any obligation with respect to the Security Deposit upon transfer of this Lease and the Premises to a person or entity assuming Landlord's obligations under this Section 6. Tenant hereby waives the provisions of any law, now or hereafter in force, including, without limitation, California Civil Code Section 1950.7, which provide that Landlord may claim from a security deposit only those sums reasonably necessary to remedy defaults in the payment of Rent, to repair damage caused by Tenant or to clean the Premises, it being agreed that Landlord may, in addition, claim those sums reasonably necessary to compensate Landlord for any other loss or damage, foreseeable or unforeseeable, caused by the act or omission of Tenant or any officer, employee, agent or invitee of Tenant. The Security Deposit, or any balance thereof (i.e., after deducting therefrom all amounts to which Landlord is entitled under the provisions of this Lease), shall be returned to Tenant (or, at Landlord's option, to the last assignee of Tenant's interest hereunder) within 60 days after the expiration or earlier termination of this Lease.

If Landlord transfers its interest in the Project or this Lease, Landlord shall either (a) transfer any Security Deposit then held by Landlord to a person or entity assuming Landlord's obligations under this Section 6, or (b) return to Tenant any Security Deposit then held by Landlord and remaining after the deductions permitted herein. Upon such transfer to such transferee or the return of the Security Deposit to Tenant, Landlord shall have no further obligation with respect to the Security Deposit, and Tenant's right to the return of the Security Deposit shall apply solely against Landlord's transferee. The Security Deposit is not an advance rental deposit or a measure of Landlord's damages in case of Tenant's default. Landlord's obligation respecting the Security Deposit is that of a debtor, not a trustee, and no interest shall accrue thereon.

7. **Use**. The Premises shall be used solely for the Permitted Use set forth in the basic lease provisions on page 1 of this Lease, and in compliance with all laws, orders, judgments, ordinances, regulations, codes, directives, permits, licenses, covenants and restrictions now or hereafter applicable to the Premises, and to the use and occupancy thereof, including, without limitation, the Americans With Disabilities Act, 42 U.S.C. § 12101, et seq. (together with the regulations promulgated pursuant thereto, "**ADA**") (collectively, "**Legal Requirements**" and each, a "**Legal Requirement**"). Tenant shall, upon 5 days' written notice from Landlord, discontinue any use of the Premises which is declared by any Governmental Authority (as defined in Section 9) having jurisdiction to be a violation of a Legal Requirement. Tenant will not use or permit the Premises to be used for any purpose or in any manner that would void Tenant's or Landlord's insurance, increase the insurance risk, or cause the disallowance of any sprinkler or other credits. The use that Tenant has disclosed to Landlord that Tenant will be making of the Premises as of the Commencement Date will not result in the voidance of or an increased insurance risk with respect to the insurance currently being maintained by Landlord. Tenant shall not permit any part of the Premises to be used as a "place of public accommodation", as defined in the ADA or any similar legal requirement. Tenant shall reimburse Landlord promptly upon demand for any additional premium charged for any such insurance policy by reason of Tenant's failure to comply with the provisions of this Section or otherwise caused by Tenant's use and/or occupancy of the Premises. Tenant will use the Premises in a careful, safe and proper manner and will not commit or permit waste, overload the floor or structure of the Premises, subject the Premises to use that would damage the Premises or obstruct or interfere with the rights of Landlord or other tenants or occupants of the Project, including conducting or giving notice of any auction, liquidation, or going out of business sale on the Premises, or using or allowing the Premises to be used for any unlawful purpose. Tenant shall cause any equipment or machinery to be installed in the Premises so as to reasonably prevent sounds or vibrations from the Premises from extending into Common Areas, or other space in the Project. Tenant shall not place any machinery or equipment which will overload the floor in or upon the Premises or transport or move such items through the Common Areas of the Project or in the Project elevators without the prior written consent of Landlord. Except as may be provided under the Work Letter, Tenant shall not, without the prior written consent of Landlord, use the Premises in any manner which will require ventilation, air exchange, heating, gas, steam, electricity or water beyond the existing capacity of the Project as proportionately allocated to the Premises based upon Tenant's Share as usually furnished for the Permitted Use.

Landlord shall, as an Operating Expense (to the extent such Legal Requirement is generally applicable to similar buildings in the area in which the Project is located) make any alterations or modifications to the Project that are required by Legal Requirements, including the ADA, unless such alterations or modifications are triggered by reason of Tenant's, as compared to other tenants of the Project, particular use of the Premises or any Tenant Alterations, in which case Landlord shall make such alterations or modifications to the Project at Tenant's expense. Except as provided in the immediately preceding sentence, Tenant, at its sole expense, shall make any alterations or modifications to the interior or the exterior of the Premises or the Project that are required by Legal Requirements (including, without limitation, compliance of the Premises with the ADA) related to Tenant's particular use or occupancy of the Premises or any Tenant Alterations. Notwithstanding any other provision herein to the contrary, subject to the first two sentences of this paragraph, Tenant shall be responsible for any and all demands, claims, liabilities, losses, costs, expenses, actions, causes of action, damages or judgments, and all reasonable expenses incurred in investigating or resisting the same (including, without limitation,

reasonable attorneys' fees, charges and disbursements and costs of suit) (collectively, "**Claims**") arising out of any failure of the Premises to comply with any Legal Requirements, and Tenant shall indemnify, defend, hold and save Landlord harmless from and against any and all Claims arising out of or in connection with any failure of the Premises to comply with any Legal Requirement.

8. **Holding Over**. If, with Landlord's express written consent, Tenant retains possession of the Premises after the termination of the Term, (i) unless otherwise agreed in such written consent, such possession shall be subject to immediate termination by Landlord at any time, (ii) all of the other terms and provisions of this Lease (including, without limitation, the adjustment of Base Rent pursuant to Section 4 hereof) shall remain in full force and effect (excluding any expansion or renewal option or other similar right or option) during such holdover period, (iii) Tenant shall continue to pay Base Rent in the amount payable upon the date of the expiration or earlier termination of this Lease or such other amount as Landlord may indicate, in Landlord's sole and absolute discretion, in such written consent, and (iv) all other payments shall continue under the terms of this Lease. If Tenant remains in possession of the Premises after the expiration or earlier termination of the Term without the express written consent of Landlord, (A) Tenant shall become a tenant at sufferance upon the terms of this Lease except that the monthly rental shall be equal to 150% of Rent in effect during the last 30 days of the Term, and (B) Tenant shall be responsible for all damages suffered by Landlord resulting from or occasioned by Tenant's holding over, including consequential damages. No holding over by Tenant, whether with or without consent of Landlord, shall operate to extend this Lease except as otherwise expressly provided, and this Section 8 shall not be construed as consent for Tenant to retain possession of the Premises. Acceptance by Landlord of Rent after the expiration of the Term or earlier termination of this Lease shall not result in a renewal or reinstatement of this Lease.

9. **Taxes**. Landlord shall pay, as part of Operating Expenses, all taxes, levies, fees, assessments and governmental charges of any kind, existing as of the Commencement Date or thereafter enacted (collectively referred to as "**Taxes**"), imposed by any federal, state, regional, municipal, local or other governmental authority or agency, including, without limitation, quasi-public agencies (collectively, "**Governmental Authority**") during the Term, including, without limitation, all Taxes: (i) imposed on or measured by or based, in whole or in part, on rent payable to (or gross receipts received by) Landlord under this Lease and/or from the rental by Landlord of the Project or any portion thereof, or (ii) based on the square footage, assessed value or other measure or evaluation of any kind of the Premises or the Project, or (iii) assessed or imposed by or on the operation or maintenance of any portion of the Premises or the Project, including parking, or (iv) assessed or imposed by, or at the direction of, or resulting from Legal Requirements, or interpretations thereof, promulgated by any Governmental Authority, or (v) imposed as a license or other fee, charge, tax, or assessment on Landlord's business or occupation of leasing space in the Project. Landlord may contest by appropriate legal proceedings the amount, validity, or application of any Taxes or liens securing Taxes. Notwithstanding anything to the contrary herein, Landlord shall only charge Tenant for such assessments as if those assessments were paid by Landlord over the longest possible term which Landlord is permitted to pay for the applicable assessments without additional charge other than interest, if any, provided under the terms of the underlying assessments. Notwithstanding anything to the contrary contained in this Lease, Taxes shall not include any net income taxes, gross receipts tax, estate taxes or inheritance taxes imposed on Landlord except to the extent such net income taxes are in substitution for any Taxes payable hereunder, or any late penalties, interest or fines. If any such Tax is levied or assessed directly against Tenant, then Tenant shall be responsible for and shall pay the same at such times and in such manner as the taxing authority shall require. Tenant shall pay, prior to delinquency, any and all Taxes levied or assessed against any personal property or trade fixtures placed by Tenant in the Premises, whether levied or assessed against Landlord or Tenant. If any Taxes on Tenant's personal property or trade fixtures are levied against Landlord or Landlord's property, or if the assessed valuation of the Project is increased by a value attributable to improvements in or alterations to the Premises, whether owned by Landlord or Tenant and whether or not affixed to the real property so as to become a part thereof, higher than the base valuation on which Landlord from time-to-time allocates Taxes to all tenants in the Project, Landlord shall have the right, but not the obligation, to pay such Taxes. Landlord's determination of any excess assessed valuation shall be binding and conclusive, absent manifest error. The amount of any such payment by Landlord shall constitute Additional Rent due from Tenant to Landlord immediately upon demand.

10. **Parking**. Subject to all matters of record, Force Majeure, a Taking (as defined in Section 19 below) and the exercise by Landlord of its rights hereunder, Tenant shall have the right, in common with other tenants of the Project pro rata in accordance with the rentable area of the Premises and the rentable areas of the Project occupied by such other tenants, to park in those areas designated for non-reserved parking, subject in each case to Landlord's rules and regulations. Subject to the provisions of this Section 10, as of the date of this Lease, Tenant's pro rata share of parking spaces is 3.4 parking spaces per 1,000 rentable square feet of the Premises. Landlord may allocate parking spaces among Tenant and other tenants in the Project pro rata as described above if Landlord determines that such parking facilities are becoming crowded. Landlord shall not be responsible for enforcing Tenant's parking rights against any third parties, including other tenants of the Project.

11. **Utilities, Services**. Landlord shall provide to the Common Areas and the Premises, subject to the terms of this Section 11, water, electricity, heat, light, power, sewer, and other utilities (including gas and fire sprinklers to the extent the Project is plumbed for such services), and, with respect to the Common Areas and the Shared Suite Area only, refuse and trash collection and janitorial services (collectively, "**Utilities**"). Landlord shall pay, as Operating Expenses or subject to Tenant's reimbursement obligation, for all Utilities used on the Premises, all maintenance charges for Utilities, and any storm sewer charges or other similar charges for Utilities imposed by any Governmental Authority or Utility provider, and any taxes, penalties, surcharges or similar charges thereon. Landlord may cause, at Landlord's expense, any Utilities to be separately metered or charged directly to Tenant by the provider. Tenant shall pay directly to the Utility provider, prior to delinquency, any separately metered Utilities and services which may be furnished to Tenant or the Premises during the Term. Tenant shall pay, as part of Operating Expenses, its share of all charges for jointly metered Utilities based upon consumption, as reasonably determined by Landlord. No interruption or failure of Utilities, from any cause whatsoever other than Landlord's willful misconduct, shall result in eviction or constructive eviction of Tenant, termination of this Lease or the abatement of Rent. Unless Tenant delivers Landlord written notice that it has elected to retain a third party to provide janitorial services to the Premises pursuant to the immediately following sentence, Landlord shall provide janitorial services to the Premises and Landlord shall charge Tenant directly for such janitorial services. Upon written notice to Landlord, Tenant may elect, at any time during the Term, to retain a third party reasonably acceptable to Landlord to provide janitorial services to the Premises, in which case Tenant shall pay such third party directly for such janitorial services. Tenant agrees to limit use of water and sewer with respect to Common Areas to normal restroom use.

Landlord's sole obligation for either providing emergency generators or providing emergency back-up power to Tenant shall be: (i) to provide emergency generators with not less than the capacity of the emergency generators located in the Building as of the Commencement Date, and (ii) to contract with a third party to maintain the emergency generators as per the manufacturer's standard maintenance guidelines. Landlord shall have no obligation to provide Tenant with operational emergency generators or back-up power or to supervise, oversee or confirm that the third party maintaining the emergency generators is maintaining the generators as per the manufacturer's standard guidelines or otherwise. During any period of replacement, repair or maintenance of the emergency generators when the emergency generators are not operational, including any delays thereto due to the inability to obtain parts or replacement equipment, Landlord shall have no obligation to provide Tenant with an alternative back-up generator or generators or alternative sources of back-up power. Tenant expressly acknowledges and agrees that Landlord does not guaranty that such emergency generators will be operational at all times or that emergency power will be available to the Premises when needed.

12. **Alterations and Tenant's Property**. Any alterations, additions, or improvements made to the Premises by or on behalf of Tenant, including additional locks or bolts of any kind or nature upon any doors or windows in the Premises, but excluding installation, removal or realignment of furniture systems (other than removal of furniture systems owned or paid for by Landlord) not involving any modifications to the structure or connections (other than by ordinary plugs or jacks) to Building Systems (as defined in Section 13) ("**Alterations**") shall be subject to Landlord's prior written consent, which may be given or withheld in Landlord's sole discretion if any such Alteration affects the structure or Building Systems and shall not be otherwise be unreasonably withheld, conditioned or delayed. Tenant may construct nonstructural Alterations in the Premises without Landlord's prior approval if the aggregate cost of all such work in any 12 month period does not exceed $25,000.00 (a "**Notice-Only Alteration**"), provided Tenant notifies Landlord in writing of such intended Notice-Only Alteration, and such notice shall be accompanied by plans, specifications, work contracts and such other information concerning the nature and cost of the Notice-Only Alteration as may be reasonably requested by Landlord, which notice and accompanying materials shall be delivered to Landlord not less than 15 business days in advance of any proposed construction. If Landlord approves any Alterations, Landlord may impose such reasonable conditions on Tenant in connection with the commencement, performance and completion of such Alterations as Landlord may deem appropriate in Landlord's reasonable discretion. Any request for approval of an Alteration shall be in writing, delivered not less than 15 business days in advance of any proposed construction, and accompanied by plans, specifications, bid proposals, work contracts and such other information concerning the nature and cost of the alterations as may be reasonably requested by Landlord, including the identities and mailing addresses of all persons performing work or supplying materials. Landlord's right to review plans and specifications and to monitor construction shall be solely for its own benefit, and Landlord shall have no duty to ensure that such plans and specifications or construction comply with applicable Legal Requirements. Tenant shall cause, at its sole cost and expense, all Alterations to comply with insurance requirements and with Legal Requirements and shall implement at its sole cost and expense any alteration or modification required by Legal Requirements as a result of any Alterations. Tenant shall pay to Landlord, as Additional Rent, on demand an amount equal to 3% of all charges incurred by Tenant or its contractors or agents in connection with any Alteration costing in excess of $50,000 to cover Landlord's overhead and expenses for plan review, coordination, scheduling and supervision. Before Tenant begins any Alteration, Landlord may post on and about the Premises notices of non-responsibility pursuant to applicable law. Tenant shall reimburse Landlord for, and indemnify and hold Landlord harmless from, any expense incurred by Landlord by reason of faulty work done by Tenant or its contractors, delays caused by such work, or inadequate cleanup.

Tenant shall furnish security or make other arrangements reasonably satisfactory to Landlord to assure payment for the completion of all Alterations work free and clear of liens, and shall provide (and cause each contractor or subcontractor to provide) certificates of insurance for workers' compensation and other coverage in amounts and from an insurance company satisfactory to Landlord protecting Landlord against liability for personal injury or property damage during construction. Upon completion of any Alterations, Tenant shall deliver to Landlord: (i) sworn statements setting forth the names of all contractors and subcontractors who did the work and final lien waivers from all such contractors and subcontractors; and (ii) "as built" plans for any such Alteration.

Except for Removable Installations (as hereinafter defined), all Installations (as hereinafter defined) shall be and shall remain the property of Landlord during the Term and following the expiration or earlier termination of the Term, shall not be removed by Tenant at any time during the Term, and shall remain upon and be surrendered with the Premises as a part thereof. Notwithstanding the foregoing, Landlord may, at the time its approval of any such Installation is requested, or at the time it receives notice of a Notice Only Alteration, notify Tenant that Landlord requires that Tenant remove such Installation upon the expiration or earlier termination of the Term, in which event Tenant shall remove such Installation in accordance with the immediately succeeding sentence. Upon the expiration or earlier termination of the Term, Tenant shall remove (i) all wires, cables or similar equipment which Tenant has installed in the Premises or in the risers or plenums of the Building, (ii) any Installations for which Landlord has given Tenant notice of removal in accordance with the immediately preceding sentence, and (iii) all of Tenant's Property (as hereinafter defined), and Tenant shall restore and repair any damage caused by or occasioned as a result of such removal, including, without limitation, capping off all such connections behind the walls of the Premises and repairing any holes. During any restoration period beyond the expiration or earlier termination of the Term, Tenant shall pay Rent to Landlord as provided

herein as if said space were otherwise occupied by Tenant. If Landlord is requested by Tenant or any lender, lessor or other person or entity claiming an interest in any of Tenant's Property to waive any lien Landlord may have against any of Tenant's Property, and Landlord consents to such waiver, then Landlord shall be entitled to be paid as administrative rent a fee of $1,000 per occurrence for its time and effort in preparing and negotiating such a waiver of lien.

For purposes of this Lease, (x) "**Removable Installations**" means any items listed on **Exhibit F** attached hereto and any items agreed by Landlord in writing to be included on **Exhibit F** in the future, (y) "**Tenant's Property**" means Removable Installations and, other than Installations, any personal property or equipment of Tenant that may be removed without material damage to the Premises, and (z) "**Installations**" means all property of any kind paid for by Landlord, all Alterations, all fixtures, and all partitions, hardware, built-in machinery, built-in casework and cabinets and other similar additions, equipment, property and improvements built into the Premises so as to become an integral part of the Premises, including, without limitation, fume hoods which penetrate the roof or plenum area, built-in cold rooms, built-in warm rooms, walk-in cold rooms, walk-in warm rooms, deionized water systems, glass washing equipment, autoclaves, chillers, built-in plumbing, electrical and mechanical equipment and systems, and any power generator and transfer switch.

Tenant shall not be required to remove Landlord's Work at the expiration or earlier termination of the Term nor shall Tenant have the right to remove any Landlord's Work at any time.

13. **Landlord's Repairs**. Landlord, as an Operating Expense (except to the extent the cost thereof is excluded from Operating Expenses pursuant to Section 5 hereof), shall maintain all of the structural, exterior, parking and other Common Areas of the Project, including HVAC, plumbing, fire sprinklers, elevators and all other building systems serving the Premises and other portions of the Project ("**Building Systems**"), and the Shared Suite Area, in good repair, reasonable wear and tear and uninsured losses and damages caused by Tenant, or by any of Tenant's agents, servants, employees, invitees and contractors (collectively, "**Tenant Parties**") excluded. Landlord's maintenance of the Shared Suite Area shall include maintenance of the glasswash and the dishwasher located in the Shared Suite Area. Subject to the provisions of the penultimate paragraph of Section 17, losses and damages caused by Tenant or any Tenant Party shall be repaired by Landlord, at Tenant's sole cost and expense to the extent not covered by insurance that Landlord is required to maintain hereunder. Landlord reserves the right to stop Building Systems services when necessary (i) by reason of accident or emergency, or (ii) for planned repairs, alterations or improvements, which are, in the judgment of Landlord, desirable or necessary to be made, until said repairs, alterations or improvements shall have been completed. Landlord shall have no responsibility or liability for failure to supply Building Systems services during any such period of interruption; provided, however, that Landlord shall, except in case of emergency, make a commercially reasonable effort to give Tenant 2 business days advance notice of any planned stoppage of Building Systems services for routine maintenance, repairs, alterations or improvements. Landlord shall use reasonable efforts to minimize interruption of Tenant's business during such planned stoppages of Building Systems and Utilities. Tenant shall promptly give Landlord written notice of any repair required by Landlord pursuant to this Section, after which Landlord shall make a commercially reasonable effort to effect such repair. Landlord shall not be liable for any failure to make any repairs or to perform any maintenance unless such failure shall persist for an unreasonable time after Tenant's written notice of the need for such repairs or maintenance. Tenant waives its rights under any state or local law to terminate this Lease or to make such repairs at Landlord's expense and agrees that the parties' respective rights with respect to such matters shall be solely as set forth herein. Notwithstanding anything to the contrary contained herein, repairs required as the result of fire, earthquake, flood, vandalism, war, or similar cause of damage or destruction shall be controlled by Section 18.

14. **Tenant's Repairs**. Subject to Section 13 hereof, Tenant, at its expense, shall repair, replace and maintain in good condition all portions of the Premises, including, without limitation, entries, doors, ceilings, interior windows, interior walls, and the interior side of demising walls; provided, however, that Landlord shall be responsible, as part of Operating Expenses, for repairs, replacements and

maintenance that constitute capital expenditures that Landlord, in its sole and absolute discretion, determines to be necessary. Should Tenant fail to make any such repair or replacement or fail to maintain the Premises, Landlord shall give Tenant notice of such failure. If Tenant fails to commence cure of such failure within 10 days of Landlord's notice, and thereafter diligently prosecute such cure to completion, Landlord may perform such work and shall be reimbursed by Tenant within 10 days after demand therefor; provided, however, that if such failure by Tenant creates or could create an emergency, Landlord may immediately commence cure of such failure and shall thereafter be entitled to recover the costs of such cure from Tenant. Subject to Sections 17 and 18, Tenant shall bear the full uninsured cost of any repair or replacement to any part of the Project that results from damage caused by Tenant or any Tenant Party and any repair that benefits only the Premises.

15. **Mechanic's Liens**. Tenant shall discharge, by bond or otherwise, any mechanic's lien filed against the Premises or against the Project for work claimed to have been done for, or materials claimed to have been furnished to, Tenant within 10 days after the filing thereof, at Tenant's sole cost and shall otherwise keep the Premises and the Project free from any liens arising out of work performed, materials furnished or obligations incurred by Tenant. Should Tenant fail to discharge any lien described herein, Landlord shall have the right, but not the obligation, to pay such claim or post a bond or otherwise provide security to eliminate the lien as a claim against title to the Project and the cost thereof shall be immediately due from Tenant as Additional Rent. If Tenant shall lease or finance the acquisition of office equipment, furnishings, or other personal property of a removable nature utilized by Tenant in the operation of Tenant's business, Tenant warrants that any Uniform Commercial Code Financing Statement filed as a matter of public record by any lessor or creditor of Tenant will upon its face or by exhibit thereto indicate that such Financing Statement is applicable only to removable personal property of Tenant located within the Premises. In no event shall the address of the Project be furnished on the statement without qualifying language as to applicability of the lien only to removable personal property, located in an identified suite held by Tenant.

16. **Indemnification**. Tenant hereby indemnifies and agrees to defend, save and hold Landlord harmless from and against any and all Claims for injury or death to persons or damage to property occurring within or about the Premises, arising directly or indirectly out of use or occupancy of the Premises or a breach or default by Tenant in the performance of any of its obligations hereunder, except, in each case, to the extent caused by the willful misconduct or negligence of Landlord or the default by Landlord under this Lease. Landlord shall not be liable to Tenant for, and Tenant assumes all risk of damage to, personal property (including, without limitation, loss of records kept within the Premises). Tenant further waives any and all Claims for injury to Tenant's business or loss of income relating to any such damage or destruction of personal property (including, without limitation, any loss of records). Landlord shall not be liable for any damages arising from any act, omission or neglect of any tenant in the Project or of any other third party.

17. **Insurance**. Landlord shall maintain all risk property and, if applicable, sprinkler damage insurance covering the full replacement cost of the Project. Landlord shall further procure and maintain commercial general liability insurance with a single loss limit of not less than $2,000,000 for bodily injury and property damage with respect to the Project. Landlord may, but is not obligated to, maintain such other insurance and additional coverages as it may deem necessary, including, but not limited to, flood, environmental hazard and earthquake, loss or failure of building equipment, errors and omissions, rental loss during the period of repair or rebuilding, workers' compensation insurance and fidelity bonds for employees employed to perform services and insurance for any improvements installed by Tenant or which are in addition to the standard improvements customarily furnished by Landlord without regard to whether or not such are made a part of the Project. All such insurance shall be included as part of the Operating Expenses. The Project may be included in a blanket policy (in which case the cost of such insurance allocable to the Project will be determined by Landlord based upon the insurer's cost calculations). Tenant shall also reimburse Landlord for any increased premiums or additional insurance which Landlord reasonably deems necessary as a result of Tenant's use of the Premises.

Tenant, at its sole cost and expense, shall maintain during the Term: all risk or special form property insurance with business interruption and extra expense coverage, covering the full replacement cost of all property and improvements installed or placed in the Premises by Tenant at Tenant's expense; workers' compensation insurance with no less than the minimum limits required by law; employer's liability insurance with such limits as required by law; and commercial general liability insurance, with a minimum limit of not less than $2,000,000 per occurrence for bodily injury and property damage with respect to the Premises. The commercial general liability insurance policy shall name Alexandria Real Estate Equities, Inc., and Landlord, its officers, directors, employees, managers, agents, invitees and contractors (collectively, "**Landlord Parties**"), as additional insureds; insure on an occurrence and not a claims-made basis; be issued by insurance companies which have a rating of not less than policyholder rating of A and financial category rating of at least Class X in "Best's Insurance Guide"; shall not be cancelable for nonpayment of premium unless 10 days prior written notice shall have been given to Landlord from the insurer; contain a hostile fire endorsement and a contractual liability endorsement; and provide primary coverage to Landlord (any policy issued to Landlord providing duplicate or similar coverage shall be deemed excess over Tenant's policies). Copies of such policies (if requested by Landlord), or certificates of insurance showing the limits of coverage required hereunder and showing Landlord as an additional insured, along with reasonable evidence of the payment of premiums for the applicable period, shall be delivered to Landlord by Tenant upon commencement of the Term and upon each renewal of said insurance. Tenant's policy may be a "blanket policy" with an aggregate per location endorsement which specifically provides that the amount of insurance shall not be prejudiced by other losses covered by the policy. Tenant shall, at least 5 days prior to the expiration of such policies, furnish Landlord with renewal certificates.

In each instance where insurance is to name Landlord as an additional insured, Tenant shall upon written request of Landlord also designate and furnish certificates so evidencing Landlord as additional insured to: (i) any lender of Landlord holding a security interest in the Project or any portion thereof, (ii) the landlord under any lease wherein Landlord is tenant of the real property on which the Project is located, if the interest of Landlord is or shall become that of a tenant under a ground or other underlying lease rather than that of a fee owner, and/or (iii) any management company retained by Landlord to manage the Project.

The property insurance obtained by Landlord and Tenant shall include a waiver of subrogation by the insurers and all rights based upon an assignment from its insured, against Landlord or Tenant, and their respective officers, directors, employees, managers, agents, invitees and contractors ("**Related Parties**"), in connection with any loss or damage thereby insured against. Notwithstanding anything to the contrary contained in this Lease, neither party nor its respective Related Parties shall be liable to the other for loss or damage caused by any risk insured against under property insurance required to be maintained hereunder regardless of the negligence of the party to the Lease receiving the benefit of the waiver, and each party waives any claims against the other party, and its respective Related Parties, for such loss or damage. The failure of a party to insure its own property shall not void this waiver. Landlord and its respective Related Parties shall not be liable for, and Tenant hereby waives all claims against such parties for, business interruption and losses occasioned thereby sustained by Tenant or any person claiming through Tenant resulting from any accident or occurrence in or upon the Premises or the Project from any cause whatsoever. If the foregoing waivers shall contravene any law with respect to exculpatory agreements, the liability of Landlord or Tenant shall be deemed not released but shall be secondary to the other's insurer.

Landlord may require insurance policy limits to be raised to conform with requirements of Landlord's lender and/or to bring coverage limits to levels then being generally required of new tenants within the Project; provided, however, that the increased amount of coverage is consistent with coverage amounts then being required by institutional owners of similar projects with tenants occupying similar size premises in the geographical area in which the Project is located.

18. **Restoration**. If, at any time during the Term, the Project or the Premises are damaged or destroyed by a fire or other casualty, Landlord shall notify Tenant within 60 days after discovery of such damage as to the amount of time Landlord reasonably estimates it will take to restore the Project or the Premises, as applicable (the "**Restoration Period**"). If the Restoration Period is estimated to exceed 9 months (the "**Maximum Restoration Period**"), Landlord may, in such notice, elect to terminate this Lease as of the date that is 75 days after the date of discovery of such damage or destruction; provided, however, that notwithstanding Landlord's election to restore, Tenant may elect to terminate this Lease by written notice to Landlord delivered within 10 business days of receipt of notice from Landlord estimating a Restoration Period for the Premises longer than the Maximum Restoration Period. Unless either Landlord or Tenant so elects to terminate this Lease, Landlord shall, subject to receipt of sufficient insurance proceeds (with any deductible to be treated as an Operating Expense subject to the provisions of Section 5), promptly restore the Premises (excluding the improvements installed by Tenant or by Landlord and paid for by Tenant), subject to delays arising from the collection of insurance proceeds, from Force Majeure events or as needed to obtain any license, clearance or other authorization of any kind required to enter into and restore the Premises issued by any Governmental Authority having jurisdiction over the use, storage, handling, treatment, generation, release, disposal, removal or remediation of Hazardous Materials (as defined in Section 30) in, on or about the Premises (collectively referred to herein as "**Hazardous Materials Clearances**"); provided, however, that if repair or restoration of the Premises is not substantially complete as of the end of the Maximum Restoration Period or, if longer, the Restoration Period, Landlord may, in its sole and absolute discretion, elect not to proceed with such repair and restoration, or Tenant may by written notice to Landlord delivered within 10 business days of the expiration of the Maximum Restoration Period or, if longer, the Restoration Period, elect to terminate this Lease, in which event Landlord shall be relieved of its obligation to make such repairs or restoration and this Lease shall terminate as of the date that is 75 days after the later of: (i) discovery of such damage or destruction, or (ii) the date all required Hazardous Materials Clearances are obtained, but Landlord shall retain any Rent paid and the right to any Rent payable by Tenant prior to such election by Landlord or Tenant. Notwithstanding the foregoing, if a portion of the Project not including the Premises is damaged, Landlord may not terminate this Lease on the basis that the Restoration Period will exceed the Maximum Restoration Period if Landlord elects to merely repair the damage rather than redevelop or improve the Project as a whole, and Landlord actually commences construction of the repair of such damage. The Restoration Period and the Maximum Restoration Period shall not be extended by Force Majeure. In the event that the Lease terminates pursuant to the provisions of this Section 18 as a result of an earthquake, Tenant shall not be required to pay any deductibles as part of Operating Expenses in connection with such earthquake.

Tenant may, at Tenant's option, re-enter the Premises and commence doing business in accordance with this Lease upon Landlord's completion of all repairs or restoration required to be done, by Landlord with pursuant to this Section 18; provided, however, that Tenant shall nonetheless (and even if Tenant does not re-enter the Premises) continue to be responsible for all of its obligations under this Lease. Notwithstanding the foregoing, either Landlord or Tenant may terminate this Lease upon written notice to the other if the Premises are damaged during the last year of the Term and Landlord reasonably estimates that it will take more than 2 months to repair such damage; provided, however, that such notice is delivered within 10 business days after the date that Landlord provides Tenant with written notice of the estimated Restoration Period. Landlord shall also have the right to terminate this Lease if insurance proceeds are not available for such restoration. Rent shall be abated from the date all required Hazardous Material Clearances are obtained until the Premises are repaired and restored, in the proportion which the area of the Premises, if any, which is not usable by Tenant bears to the total area of the Premises, unless Landlord provides Tenant with other space in the Project during the period of repair that is suitable for the temporary conduct of Tenant's business. In the event that no Hazardous Material Clearances are required to be obtained by Tenant with respect to the Premises, rent abatement shall commence on the date of discovery of the damage or destruction. Such abatement shall be the sole remedy of Tenant, and except as provided in this Section 18, Tenant waives any right to terminate the Lease by reason of damage or casualty loss.

The provisions of this Lease, including this Section 18, constitute an express agreement between Landlord and Tenant with respect to any and all damage to, or destruction of, all or any part of the Premises, or any other portion of the Project, and any statute or regulation which is now or may hereafter be in effect shall have no application to this Lease or any damage or destruction to all or any part of the Premises or any other portion of the Project, the parties hereto expressly agreeing that this Section 18 sets forth their entire understanding and agreement with respect to such matters.

19. **Condemnation**. If the whole or any material part of the Premises or the Project is taken for any public or quasi-public use under governmental law, ordinance, or regulation, or by right of eminent domain, or by private purchase in lieu thereof (a "**Taking**" or "**Taken**"), and the Taking would in Landlord's reasonable judgment, materially interfere with or impair Landlord's ownership or operation of the Project or would in the reasonable judgment of Landlord and Tenant either prevent or materially interfere with Tenant's use of the Premises (as resolved, if the parties are unable to agree, by arbitration by a single arbitrator with the qualifications and experience appropriate to resolve the matter and appointed pursuant to and acting in accordance with the rules of the American Arbitration Association), then upon written notice by Landlord or Tenant to the other, this Lease shall terminate and Rent shall be apportioned as of said date. If part of the Premises shall be Taken, and this Lease is not terminated as provided above, Landlord shall promptly restore the Premises and the Project as nearly as is commercially reasonable under the circumstances to their condition prior to such partial Taking and the rentable square footage of the Building, the rentable square footage of the Premises, Tenant's Share of Operating Expenses and the Rent payable hereunder during the unexpired Term shall be reduced to such extent as may be fair and reasonable under the circumstances. Upon any such Taking, Landlord shall be entitled to receive the entire price or award from any such Taking without any payment to Tenant, and Tenant hereby assigns to Landlord Tenant's interest, if any, in such award. Tenant shall have the right, to the extent that same shall not diminish Landlord's award, to make a separate claim against the condemning authority (but not Landlord) for such compensation as may be separately awarded or recoverable by Tenant for moving expenses and damage to Tenant's trade fixtures, if a separate award for such items is made to Tenant. Tenant hereby waives any and all rights it might otherwise have pursuant to any provision of state law to terminate this Lease upon a partial Taking of the Premises or the Project.

20. **Events of Default**. Each of the following events shall be a default ("**Default**") by Tenant under this Lease:

(a) **Payment Defaults**. Tenant shall fail to pay any installment of Rent or any other payment hereunder when due; provided, however, that Landlord will give Tenant notice and an opportunity to cure any failure to pay Rent within 5 days of any such notice not more than twice in any 12 month period and Tenant agrees that such notice shall be in lieu of and not in addition to, or shall be deemed to be, any notice required by law.

(b) **Insurance**. Any insurance required to be maintained by Tenant pursuant to this Lease shall be canceled or terminated or shall expire or shall be reduced or materially changed, or Landlord shall receive a notice of nonrenewal of any such insurance and Tenant shall fail to obtain replacement insurance at least 20 days before the expiration of the current coverage.

(c) **Abandonment**. Tenant shall abandon the Premises.

(d) **Improper Transfer**. Tenant shall assign, sublease or otherwise transfer or attempt to transfer all or any portion of Tenant's interest in this Lease or the Premises except as expressly permitted herein, or Tenant's interest in this Lease shall be attached, executed upon, or otherwise judicially seized and such action is not released within 90 days of the action.

(e) **Liens**. Tenant shall fail to discharge or otherwise obtain the release of any lien placed upon the Premises in violation of this Lease within 10 days after Tenant's receipt of written notice that any such lien is filed against the Premises.

(f) **Insolvency Events**. Tenant or any guarantor or surety of Tenant's obligations hereunder shall: (A) make a general assignment for the benefit of creditors; (B) commence any case, proceeding or other action seeking to have an order for relief entered on its behalf as a debtor or to adjudicate it a bankrupt or insolvent, or seeking reorganization, arrangement, adjustment, liquidation, dissolution or composition of it or its debts or seeking appointment of a receiver, trustee, custodian or other similar official for it or for all or of any substantial part of its property (collectively a "**Proceeding for Relief**"); (C) become the subject of any Proceeding for Relief which is not dismissed within 90 days of its filing or entry; or (D) die or suffer a legal disability (if Tenant, guarantor, or surety is an individual) or be dissolved or otherwise fail to maintain its legal existence (if Tenant, guarantor or surety is a corporation, partnership or other entity).

(g) **Estoppel Certificate or Subordination Agreement**. Tenant fails to execute any document required from Tenant under Sections 23 or 27 within 5 days after a second notice requesting such document.

(h) **Other Defaults**. Tenant shall fail to comply with any provision of this Lease other than those specifically referred to in this Section 20, and, except as otherwise expressly provided herein, such failure shall continue for a period of 10 days after written notice thereof from Landlord to Tenant.

Any notice given under Section 20(h) hereof shall: (i) specify the alleged default, (ii) demand that Tenant cure such default, (iii) be in lieu of, and not in addition to, or shall be deemed to be, any notice required under any provision of applicable law, and (iv) not be deemed a forfeiture or a termination of this Lease unless Landlord elects otherwise in such notice; provided that if the nature of Tenant's default pursuant to Section 20(h) is such that it cannot be cured by the payment of money and reasonably requires more than 30 days to cure, then Tenant shall not be deemed to be in default if Tenant commences such cure within said 30 day period and thereafter diligently prosecutes the same to completion; provided, however, that such cure shall be completed no later than 45 days from the date of Landlord's notice.

21. **Landlord's Remedies**.

(a) **Payment By Landlord; Interest**. Upon a Default by Tenant hereunder, Landlord may, without waiving or releasing any obligation of Tenant hereunder, make such payment or perform such act on behalf of Tenant. All sums so paid or incurred by Landlord, together with interest thereon, from the date such sums were paid or incurred, at the annual rate equal to 12% per annum or the highest rate permitted by law (the "**Default Rate**"), whichever is less, shall be payable to Landlord on demand as Additional Rent. Nothing herein shall be construed to create or impose a duty on Landlord to mitigate any damages resulting from Tenant's Default hereunder.

(b) **Late Payment Rent**. Late payment by Tenant to Landlord of Rent and other sums due will cause Landlord to incur costs not contemplated by this Lease, the exact amount of which will be extremely difficult and impracticable to ascertain. Such costs include, but are not limited to, processing and accounting charges and late charges which may be imposed on Landlord under any Mortgage covering the Premises. Therefore, if any installment of Rent due from Tenant is not received by Landlord within 5 days after the date such payment is due, Tenant shall pay to Landlord an additional sum equal to 6% of the overdue Rent as a late charge. Notwithstanding the foregoing, before assessing a late charge the first time in any calendar year, Landlord shall provide Tenant written notice of the delinquency and will waive the right if Tenant pays such delinquency within 5 days thereafter. The parties agree that this late charge represents a fair and reasonable estimate of the costs Landlord will incur by reason of late payment by Tenant. In addition to the late charge, Rent not paid when due shall bear interest at the Default Rate from the 5th day after the date due until paid.

(c) **Remedies**. Upon the occurrence of a Default by Tenant, Landlord, at its option, without further notice or demand to Tenant, shall have in addition to all other rights and remedies provided in this Lease, at law or in equity, the option to pursue any one or more of the following remedies, each and all of which shall be cumulative and nonexclusive, without any notice or demand whatsoever.

(i) Terminate this Lease, or at Landlord's option, Tenant's right to possession only, in which event Tenant shall immediately surrender the Premises to Landlord, and if Tenant fails to do so, Landlord may, without prejudice to any other remedy which it may have for possession or arrearages in rent, enter upon and take possession of the Premises and expel or remove Tenant and any other person who may be occupying the Premises or any part thereof, without being liable for prosecution or any claim or damages therefor;

(ii) Upon any termination of this Lease, whether pursuant to the foregoing Section 21(c)(i) or otherwise, Landlord may recover from Tenant the following:

(A) The worth at the time of award of any unpaid rent which has been earned at the time of such termination; plus

(B) The worth at the time of award of the amount by which the unpaid rent which would have been earned after termination until the time of award exceeds the amount of such rental loss that Tenant proves could have been reasonably avoided; plus

(C) The worth at the time of award of the amount by which the unpaid rent for the balance of the Term after the time of award exceeds the amount of such rental loss that Tenant proves could have been reasonably avoided; plus

(D) Any other amount necessary to compensate Landlord for all the detriment proximately caused by Tenant's failure to perform its obligations under this Lease or which in the ordinary course of things would be likely to result therefrom, specifically including, but not limited to, brokerage commissions and advertising expenses incurred, expenses of remodeling the Premises or any portion thereof for a new tenant, whether for the same or a different use, and any special concessions made to obtain a new tenant; and

(E) At Landlord's election, such other amounts in addition to or in lieu of the foregoing as may be permitted from time to time by applicable law.

The term "**rent**" as used in this Section 21 shall be deemed to be and to mean all sums of every nature required to be paid by Tenant pursuant to the terms of this Lease, whether to Landlord or to others. As used in Sections 21(c)(ii)(A) and (B), above, the "**worth at the time of award**" shall be computed by allowing interest at the Default Rate. As used in Section 21(c)(ii)(C) above, the "**worth at the time of award**" shall be computed by discounting such amount at the discount rate of the Federal Reserve Bank of San Francisco at the time of award plus 1%.

(iii) Landlord may continue this Lease in effect after Tenant's Default and recover rent as it becomes due (Landlord and Tenant hereby agreeing that Tenant has the right to sublet or assign hereunder, subject only to reasonable limitations). Accordingly, if Landlord does not elect to terminate this Lease following a Default by Tenant, Landlord may, from time to time, without terminating this Lease, enforce all of its rights and remedies hereunder, including the right to recover all Rent as it becomes due.

(iv) Whether or not Landlord elects to terminate this Lease following a Default by Tenant, Landlord shall have the right to terminate any and all subleases, licenses, concessions or other consensual arrangements for possession entered into by Tenant and affecting the Premises or may, in Landlord's sole discretion, succeed to Tenant's interest in such subleases, licenses, concessions or arrangements. Upon Landlord's election to succeed to Tenant's interest in any such subleases, licenses, concessions or arrangements, Tenant shall, as of the date of notice by Landlord of such election, have no further right to or interest in the rent or other consideration receivable thereunder.

(v) Independent of the exercise of any other remedy of Landlord hereunder or under applicable law, Landlord may, upon written notice to Tenant, conduct an environmental test of the Premises as generally described in Section 30(d) hereof, at Tenant's expense.

(d) **Effect of Exercise**. Exercise by Landlord of any remedies hereunder or otherwise available shall not be deemed to be an acceptance of surrender of the Premises and/or a termination of this Lease by Landlord, it being understood that such surrender and/or termination can be effected only by the express written agreement of Landlord and Tenant. Any law, usage, or custom to the contrary notwithstanding, Landlord shall have the right at all times to enforce the provisions of this Lease in strict accordance with the terms hereof; and the failure of Landlord at any time to enforce its rights under this Lease strictly in accordance with same shall not be construed as having created a custom in any way or manner contrary to the specific terms, provisions, and covenants of this Lease or as having modified the same and shall not be deemed a waiver of Landlord's right to enforce one or more of its rights in connection with any subsequent default. A receipt by Landlord of Rent or other payment with knowledge of the breach of any covenant hereof shall not be deemed a waiver of such breach, and no waiver by Landlord of any provision of this Lease shall be deemed to have been made unless expressed in writing and signed by Landlord. Following a Default by Tenant under this Lease and to the greatest extent permitted by law, Tenant waives the service of notice of Landlord's intention to re-enter, re-take or otherwise obtain possession of the Premises as provided in any statute, or to institute legal proceedings to that end, and also waives all right of redemption in case Tenant shall be dispossessed by a judgment or by warrant of any court or judge. Any reletting of the Premises or any portion thereof shall be on such terms and conditions as Landlord in its sole discretion may determine. Landlord shall not be liable for, nor shall Tenant's obligations hereunder be diminished because of, Landlord's failure to relet the Premises or collect rent due in respect of such reletting or otherwise to mitigate any damages arising by reason of Tenant's Default.

22. **Assignment and Subletting**.

(a) **General Prohibition**. Without Landlord's prior written consent subject to and on the conditions described in this Section 22, Tenant shall not, directly or indirectly, voluntarily or by operation of law, assign this Lease or sublease the Premises or any part thereof or mortgage, pledge, or hypothecate its leasehold interest or grant any concession or license within the Premises, and any attempt to do any of the foregoing shall be void and of no effect. If Tenant is a corporation, partnership or limited liability company, the shares or other ownership interests thereof which are not actively traded upon a stock exchange or in the over-the-counter market, a transfer or series of transfers whereby 49% or more of the issued and outstanding shares or other ownership interests of such corporation are, or voting control is, transferred (but excepting transfers upon deaths of individual owners) from a person or persons or entity or entities which were owners thereof at time of execution of this Lease to persons or entities who were not owners of shares or other ownership interests of the corporation, partnership or limited liability company at time of execution of this Lease, shall be deemed an assignment of this Lease requiring the consent of Landlord as provided in this Section 22. Notwithstanding the foregoing, Tenant shall have the right to obtain financing from investors (including venture capital funding and corporate partners) or undergo a public offering which results in a change in control of Tenant without such change of control constituting an assignment under this Section 22 requiring Landlord consent, provided that (i) Tenant notifies Landlord in writing of the financing at least 5 business days prior to the closing of the financing, and (ii) provided that in no event shall such financing result in a change in use of the Premises from the use contemplated by Tenant at the commencement of the Term.

(b) **Permitted Transfers**. If Tenant desires to assign, sublease, hypothecate or otherwise transfer this Lease or sublet the Premises other than pursuant to a Permitted Assignment (as defined below), then at least 15 business days, but not more than 45 business days, before the date Tenant desires the assignment or sublease to be effective (the "**Assignment Date**"), Tenant shall give Landlord a notice (the "**Assignment Notice**") containing such information about the proposed assignee or sublessee, including the proposed use of the Premises and any Hazardous Materials proposed to be used, stored handled, treated, generated in or released or disposed of from the Premises, the Assignment Date, any relationship between Tenant and the proposed assignee or sublessee, and all material terms and conditions of the proposed assignment or sublease, including a copy of any proposed assignment or sublease in its final form, and such other information as Landlord may deem reasonably necessary or appropriate to its consideration whether to grant its consent. Landlord may, by giving written notice to Tenant within 15 business days after receipt of the Assignment Notice: (i) grant such consent, (ii) refuse such consent, in its reasonable discretion; or (iii) with respect to an assignment of the Lease or sublease of substantially all of the Premises, terminate this Lease as of the Assignment Date (an "**Assignment Termination**"). Among other reasons, it shall be reasonable for Landlord to withhold its consent in any of these instances: (1) the proposed assignee or subtenant is a governmental agency; (2) in Landlord's reasonable judgment, the use of the Premises by the proposed assignee or subtenant would entail any alterations that would lessen the value of the leasehold improvements in the Premises, or would require increased services by Landlord; (3) in Landlord's reasonable judgment, the proposed assignee or subtenant is engaged in areas of scientific research or other business concerns that are, in Landlord's reasonable judgment, controversial; (4) in Landlord's reasonable judgment, the proposed assignee or subtenant lacks the creditworthiness to support the financial obligations it will incur under the proposed assignment or sublease; (5) in Landlord's reasonable judgment, the character, reputation, or business of the proposed assignee or subtenant is inconsistent with the desired tenant-mix or the quality of other tenancies in the Project or is inconsistent with the type and quality of the nature of the Building; (6) Landlord has received from any prior landlord to the proposed assignee or subtenant a negative report concerning such prior landlord's experience with the proposed assignee or subtenant; (7) Landlord has experienced previous defaults by or is in litigation with the proposed assignee or subtenant; (8) the use of the Premises by the proposed assignee or subtenant will violate any applicable Legal Requirement; (9) the proposed assignee or subtenant is an entity from whom Landlord has received or to whom Landlord has delivered a letter of intent; or (10) the assignment or sublease is prohibited by Landlord's lender. If Landlord delivers notice of its election to exercise an Assignment Termination, Tenant shall have the right to withdraw such Assignment Notice by written notice to Landlord of such election within 5 business days after Landlord's notice electing to exercise the Assignment Termination. If Tenant withdraws such Assignment Notice, this Lease shall continue in full force and effect. If Tenant does not withdraw such Assignment Notice, this Lease, and the term and estate herein granted, shall terminate as of the Assignment Date. No failure of Landlord to exercise any such option to terminate this Lease, or to deliver a timely notice in response to the Assignment Notice, shall be deemed to be Landlord's consent to the proposed assignment, sublease or other transfer. Tenant shall pay to Landlord a fee equal to One Thousand Five Hundred Dollars ($1,500) in connection with its consideration of any Assignment Notice and/or its preparation or review of any consent documents. Notwithstanding the foregoing, Landlord's consent to an assignment of this Lease or a subletting of any portion of the Premises to any entity controlling, controlled by or under common control with Tenant (a "**Control Permitted Assignment**") shall not be required, provided that Landlord shall have the right to approve the form of any such sublease or assignment (which approval shall not be unreasonably withheld or delayed). In addition, Tenant shall have the right to assign this Lease, upon 30 days prior written notice to Landlord but without obtaining Landlord's prior written consent, to a corporation or other entity which is a successor-in-interest to Tenant (or, if applicable, the resulting Tenant), by way of merger, consolidation or corporate reorganization, or by the purchase of all or substantially all of the assets or the ownership interests of Tenant provided that (i) such merger or consolidation, or such acquisition or assumption, as the case may be, is for a good business purpose and not principally for the purpose of transferring the Lease, and (ii) the net worth (as determined in accordance with generally accepted accounting principles ("**GAAP**")) of the assignee (or, if applicable, the resulting Tenant) is not less than the net worth (as determined in accordance with GAAP) of Tenant as of the date of Tenant's most current quarterly or annual financial statements, and (iii) if the resulting assignee is an entity other than Tenant, such assignee shall agree in writing to assume all of the terms, covenants and conditions of this Lease arising after the effective date of the assignment (a "**Corporate Permitted Assignment**"). Control Permitted Assignments and Corporate Permitted Assignments are hereinafter referred to as "**Permitted Assignments**." Notwithstanding anything to the contrary contained herein, Landlord shall have no right to deliver an Assignment Termination as a result of a Permitted Assignment or any notice of a Permitted Assignment from Tenant.

(c) **Additional Conditions**. As a condition to any such assignment or subletting, whether or not Landlord's consent is required, Landlord may require:

(i) that any assignee or subtenant agree, in writing at the time of such assignment or subletting, that if Landlord gives such party notice that Tenant is in default under this Lease, such party shall thereafter make all payments otherwise due Tenant directly to Landlord, which payments will be received by Landlord without any liability except to credit such payment against those due under the Lease, and any such third party shall agree to attorn to Landlord or its successors and assigns should this Lease be terminated for any reason; provided, however, in no event shall Landlord or its successors or assigns be obligated to accept such attornment; and

(ii) A list of Hazardous Materials, certified by the proposed assignee or sublessee to be true and correct, which the proposed assignee or sublessee intends to use, store, handle, treat, generate in or release or dispose of from the Premises, together with copies of all documents relating to such use, storage, handling, treatment, generation, release or disposal of Hazardous Materials by the proposed assignee or subtenant in the Premises or on the Project, prior to the proposed assignment or subletting, including, without limitation: permits; approvals; reports and correspondence; storage and management plans; plans relating to the installation of any storage tanks to be installed in or under the Project (provided, said installation of tanks shall only be permitted after Landlord has given its written consent to do so, which consent may be withheld in Landlord's sole and absolute discretion); and all closure plans or any other documents required by any and all federal, state and local Governmental Authorities for any storage tanks installed in, on or under the Project for the closure of any such tanks. Neither Tenant nor any such proposed assignee or subtenant is required, however, to provide Landlord with any portion(s) of the such documents containing information of a proprietary nature which, in and of themselves, do not contain a reference to any Hazardous Materials or hazardous activities.

(d) **No Release of Tenant, Sharing of Excess Rents**. Notwithstanding any assignment or subletting, Tenant and any guarantor or surety of Tenant's obligations under this Lease shall at all times remain fully and primarily responsible and liable for the payment of Rent and for compliance with all of Tenant's other obligations under this Lease. Except with respect to a Permitted Assignment, if the Rent due and payable by a sublessee or assignee (or a combination of the rental payable under such sublease or assignment plus any bonus or other consideration therefor or incident thereto in any form attributable to the assignment or sublease) exceeds the sum of the rental payable under this Lease, (excluding however, any Rent payable under this Section and actual and reasonable brokerage fees, legal costs and any design or construction fees directly related to and required pursuant to the terms of any such sublease) ("**Excess Rent**"), then Tenant shall be bound and obligated to pay Landlord as Additional Rent hereunder 50% of such Excess Rent within 10 days following receipt thereof by Tenant. If Tenant shall sublet the Premises or any part thereof, Tenant hereby immediately and irrevocably assigns to Landlord, as security for Tenant's obligations under this Lease, all rent from any such subletting, and Landlord as assignee and as attorney-in-fact for Tenant, or a receiver for Tenant appointed on Landlord's application, may collect such rent and apply it toward Tenant's obligations under this Lease; except that, until the occurrence of a Default, Tenant shall have the right to collect such rent.

(e) **No Waiver**. The consent by Landlord to an assignment or subletting shall not relieve Tenant or any assignees of this Lease or any sublessees of the Premises from obtaining the consent of Landlord to any further assignment or subletting nor shall it release Tenant or any assignee or sublessee of Tenant from full and primary liability under the Lease. The acceptance of Rent hereunder, or the acceptance of performance of any other term, covenant, or condition thereof, from any other person or entity shall not be deemed to be a waiver of any of the provisions of this Lease or a consent to any subletting, assignment or other transfer of the Premises.

(f) **Prior Conduct of Proposed Transferee**. Notwithstanding any other provision of this Section 22, if (i) the proposed assignee or sublessee of Tenant has been required by any prior landlord, lender or Governmental Authority to take remedial action in connection with Hazardous Materials contaminating a property, where the contamination resulted from such party's action or use of the property in question, (ii) the proposed assignee or sublessee is subject to an enforcement order issued by any Governmental Authority in connection with the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials (including, without limitation, any order related to the failure to make a required reporting to any Governmental Authority), or (iii) because of the existence of a pre-existing environmental condition in the vicinity of or underlying the Project, the risk that Landlord would be targeted as a responsible party in connection with the remediation of such pre-existing environmental condition would be materially increased or exacerbated by the proposed use of Hazardous Materials by such proposed assignee or sublessee, Landlord shall have the absolute right to refuse to consent to any assignment or subletting to any such party.

23. **Estoppel Certificate**. Tenant shall, within 10 business days of written notice from Landlord, execute, acknowledge and deliver a statement in writing in any form reasonably requested by a proposed lender or purchaser, (i) certifying that this Lease is unmodified and in full force and effect (or, if modified, stating the nature of such modification and certifying that this Lease as so modified is in full force and effect) and the dates to which the rental and other charges are paid in advance, if any, (ii) acknowledging that there are not any uncured defaults on the part of Landlord hereunder, or specifying such defaults if any are claimed, and (iii) setting forth such further information with respect to the status of this Lease or the Premises as may be reasonably requested thereon. Any such statement may be relied upon by any prospective purchaser or encumbrancer of all or any portion of the real property of which the Premises are a part. Tenant's failure to deliver such statement within such time shall be conclusive upon Tenant that the Lease is in full force and effect and without modification except as may be represented by Landlord in any certificate prepared by Landlord and delivered to Tenant for execution.

24. **Quiet Enjoyment**. So long as Tenant is not in Default under this Lease, Tenant shall, subject to the terms of this Lease, at all times during the Term, have peaceful and quiet enjoyment of the Premises against any person claiming by, through or under Landlord.

25. **Prorations**. All prorations required or permitted to be made hereunder shall be made on the basis of a 360 day year and 30 day months.

26. **Rules and Regulations**. Tenant shall, at all times during the Term and any extension thereof, comply with all reasonable rules and regulations at any time or from time to time established by Landlord covering use of the Premises and the Project. The current rules and regulations are attached hereto as **Exhibit E**. If there is any conflict between said rules and regulations and other provisions of this Lease, the terms and provisions of this Lease shall control. Landlord shall not have any liability or obligation for the breach of any rules or regulations by other tenants in the Project and shall not enforce such rules and regulations in a discriminatory manner.

27. **Subordination**. This Lease and Tenant's interest and rights hereunder are hereby made and shall be subject and subordinate at all times to the lien of any Mortgage now existing or hereafter created on or against the Project or the Premises, and all amendments, restatements, renewals, modifications, consolidations, refinancing, assignments and extensions thereof, without the necessity of any further instrument or act on the part of Tenant; provided, however that so long as there is no Default hereunder, Tenant's right to possession of the Premises shall not be disturbed by the Holder of any such Mortgage. Tenant agrees, at the election of the Holder of any such Mortgage, to attorn to any such Holder. Tenant agrees upon demand to execute, acknowledge and deliver such instruments, confirming

such subordination, and such instruments of attornment as shall be requested by any such Holder, provided any such instruments contain appropriate non-disturbance provisions assuring Tenant's quiet enjoyment of the Premises as set forth in Section 24 hereof. Notwithstanding the foregoing, any such Holder may at any time subordinate its Mortgage to this Lease, without Tenant's consent, by notice in writing to Tenant, and thereupon this Lease shall be deemed prior to such Mortgage without regard to their respective dates of execution, delivery or recording and in that event such Holder shall have the same rights with respect to this Lease as though this Lease had been executed prior to the execution, delivery and recording of such Mortgage and had been assigned to such Holder. The term "**Mortgage**" whenever used in this Lease shall be deemed to include deeds of trust, security assignments and any other encumbrances, and any reference to the "**Holder**" of a Mortgage shall be deemed to include the beneficiary under a deed of trust.

28. **Surrender**. Upon the expiration of the Term or earlier termination of Tenant's right of possession, Tenant shall surrender the Premises to Landlord in the same condition as received, subject to any Alterations or Installations permitted by Landlord to remain in the Premises, free of Hazardous Materials brought upon, kept, used, stored, handled, treated, generated in, or released or disposed of from, the Premises by any person other than a Landlord Party (collectively, "**Tenant HazMat Operations**") and released of all Hazardous Materials Clearances, broom clean, ordinary wear and tear and casualty loss and condemnation covered by Sections 18 and 19 excepted. At least 3 months prior to the surrender of the Premises, Tenant shall deliver to Landlord a narrative description of the actions proposed (or required by any Governmental Authority) to be taken by Tenant in order to surrender the Premises (including any Installations permitted by Landlord to remain in the Premises) at the expiration or earlier termination of the Term, free from any residual impact from the Tenant HazMat Operations and otherwise released for unrestricted use and occupancy (the "**Surrender Plan**"). Such Surrender Plan shall be accompanied by a current listing of (i) all Hazardous Materials licenses and permits held by or on behalf of any Tenant Party with respect to the Premises, and (ii) all Hazardous Materials used, stored, handled, treated, generated, released or disposed of from the Premises, and shall be subject to the review and approval of Landlord's environmental consultant, such approval not to be unreasonably withheld or delayed. In connection with the review and approval of the Surrender Plan, upon the request of Landlord, Tenant shall deliver to Landlord or its consultant such additional non-proprietary information concerning Tenant HazMat Operations as Landlord shall request. On or before such surrender, Tenant shall deliver to Landlord evidence that the approved Surrender Plan shall have been satisfactorily completed and Landlord shall have the right, subject to reimbursement at Tenant's expense as set forth below, to cause Landlord's environmental consultant to inspect the Premises and perform such additional procedures as may be deemed reasonably necessary to confirm that the Premises are, as of the effective date of such surrender or early termination of the Lease, free from any residual impact from Tenant HazMat Operations. Tenant shall reimburse Landlord, as Additional Rent, for the actual reasonable out-of pocket expense incurred by Landlord for Landlord's environmental consultant to review and approve the Surrender Plan and to visit the Premises and verify satisfactory completion of the same, which cost shall not exceed $2,500. Landlord shall have the unrestricted right to deliver such Surrender Plan and any report by Landlord's environmental consultant with respect to the surrender of the Premises to third parties.

If Tenant shall fail to prepare or submit a Surrender Plan approved by Landlord, or if Tenant shall fail to complete the approved Surrender Plan, or if such Surrender Plan, whether or not approved by Landlord, shall fail to adequately address any residual effect of Tenant HazMat Operations in, on or about the Premises, Landlord shall have the right to take such actions as Landlord may deem reasonable or appropriate to assure that the Premises and the Project are surrendered free from any residual impact from Tenant HazMat Operations, the cost of which actions shall be reimbursed by Tenant as Additional Rent, without regard to the limitation set forth in the first paragraph of this Section 28.

Tenant shall immediately return to Landlord all keys and/or access cards to parking, the Project, restrooms or all or any portion of the Premises furnished to or otherwise procured by Tenant. If any such access card or key is lost, Tenant shall pay to Landlord, at Landlord's election, either the cost of replacing

such lost access card or key or the cost of reprogramming the access security system in which such access card was used or changing the lock or locks opened by such lost key. Any Tenant's Property, Alterations and property not so removed by Tenant as permitted or required herein shall be deemed abandoned and may be stored, removed, and disposed of by Landlord at Tenant's expense, and Tenant waives all claims against Landlord for any damages resulting from Landlord's retention and/or disposition of such property. All obligations of Tenant hereunder not fully performed as of the termination of the Term, including the obligations of Tenant under Section 30 hereof, shall survive the expiration or earlier termination of the Term, including, without limitation, indemnity obligations, payment obligations with respect to Rent and obligations concerning the condition and repair of the Premises.

29. **Waiver of Jury Trial**. TO THE EXTENT PERMITTED BY LAW, TENANT AND LANDLORD WAIVE ANY RIGHT TO TRIAL BY JURY OR TO HAVE A JURY PARTICIPATE IN RESOLVING ANY DISPUTE, WHETHER SOUNDING IN CONTRACT, TORT, OR OTHERWISE, BETWEEN LANDLORD AND TENANT ARISING OUT OF THIS LEASE OR ANY OTHER INSTRUMENT, DOCUMENT, OR AGREEMENT EXECUTED OR DELIVERED IN CONNECTION HEREWITH OR THE TRANSACTIONS RELATED HERETO.

30. **Environmental Requirements**.

(a) **Prohibition/Compliance/Indemnity**. Tenant shall not cause or permit any Hazardous Materials (as hereinafter defined) to be brought upon, kept, used, stored, handled, treated, generated in or about, or released or disposed of from, the Premises or the Project in violation of applicable Environmental Requirements (as hereinafter defined) by Tenant or any Tenant Party. If Tenant breaches the obligation stated in the preceding sentence, or if the presence of Hazardous Materials in the Premises during the Term or any holding over results in contamination of the Premises, the Project or any adjacent property or if contamination of the Premises, the Project or any adjacent property by Hazardous Materials brought into, kept, used, stored, handled, treated, generated in or about, or released or disposed of from, the Premises by anyone other than Landlord and Landlord's employees, agents and contractors otherwise occurs during the Term or any holding over, Tenant hereby indemnifies and shall defend and hold Landlord, its officers, directors, employees, agents and contractors harmless from any and all actions (including, without limitation, remedial or enforcement actions of any kind, administrative or judicial proceedings, and orders or judgments arising out of or resulting therefrom), costs, claims, damages (including, without limitation, punitive damages and damages based upon diminution in value of the Premises or the Project, or the loss of, or restriction on, use of the Premises or any portion of the Project), expenses (including, without limitation, attorneys', consultants' and experts' fees, court costs and amounts paid in settlement of any claims or actions), fines, forfeitures or other civil, administrative or criminal penalties, injunctive or other relief (whether or not based upon personal injury, property damage, or contamination of, or adverse effects upon, the environment, water tables or natural resources), liabilities or losses (collectively, "**Environmental Claims**") which arise during or after the Term as a result of such contamination. This indemnification of Landlord by Tenant includes, without limitation, costs incurred in connection with any investigation of site conditions or any cleanup, treatment, remedial, removal, or restoration work required by any federal, state or local Governmental Authority because of Hazardous Materials present in the air, soil or ground water above, on, or under the Premises. Without limiting the foregoing, if the presence of any Hazardous Materials on the Premises, the Building, the Project or any adjacent property caused or permitted by Tenant or any Tenant Party results in any contamination of the Premises, the Building, the Project or any adjacent property, Tenant shall promptly take all actions at its sole expense and in accordance with applicable Environmental Requirements as are necessary to return the Premises, the Building, the Project or any adjacent property to the condition existing prior to the time of such contamination, provided that Landlord's approval of such action shall first be obtained, which approval shall not unreasonably be withheld so long as such actions would not potentially have any material adverse long-term or short-term effect on the Premises, the Building or the Project. Notwithstanding anything to the contrary contained in Section 28 or this Section 30, Tenant shall not be responsible for or have any liability to Landlord, and the indemnification and hold harmless obligation set forth in this paragraph shall not apply to Hazardous Materials in or about the Building, the

Project or adjacent property, which Hazardous Materials Tenant proves (i) existed prior to the Commencement Date, (ii) originated from any separately demised tenant space within the Project other than the Premises or (iii) were not brought upon, kept, used, stored, handled, treated, generated in, or released or disposed of from, the Project by Tenant or any Tenant Party, unless in any such case, to the extent the presence of such Hazardous Materials (x) is the result of a breach by Tenant of any of its obligations under this Lease, or (y) was caused, contributed to or exacerbated by Tenant or any Tenant Party.

(b) **Business**. Landlord acknowledges that it is not the intent of this Section 30 to prohibit Tenant from using the Premises for the Permitted Use. Tenant may operate its business according to prudent industry practices so long as the use or presence of Hazardous Materials is strictly and properly monitored according to all then applicable Environmental Requirements. As a material inducement to Landlord to allow Tenant to use Hazardous Materials in connection with its business, Tenant agrees to deliver to Landlord prior to the Commencement Date a list identifying each type of Hazardous Materials to be brought upon, kept, used, stored, handled, treated, generated on, or released or disposed of from, the Premises and setting forth any and all governmental approvals or permits required in connection with the presence, use, storage, handling, treatment, generation, release or disposal of such Hazardous Materials on or from the Premises ("**Hazardous Materials List**"). Tenant shall deliver to Landlord an updated Hazardous Materials List at least once a year listing all Hazardous Materials which Tenant is required to disclose to any Governmental Authority (e.g., the fire department) in connection with its use or occupancy of the Premises. Tenant shall deliver to Landlord true and correct copies of the following documents (the "**Haz Mat Documents**") relating to the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials prior to the Commencement Date, or if unavailable at that time, concurrent with the receipt from or submission to a Governmental Authority: permits; approvals; reports and correspondence; storage and management plans, notice of violations of any Legal Requirements; plans relating to the installation of any storage tanks to be installed in or under the Project (provided, said installation of tanks shall only be permitted after Landlord has given Tenant its written consent to do so, which consent may be withheld in Landlord's sole and absolute discretion); all closure plans or any other documents required by any and all federal, state and local Governmental Authorities for any storage tanks installed in, on or under the Project for the closure of any such tanks; and a Surrender Plan (to the extent surrender in accordance with Section 28 cannot be accomplished in 3 months). Tenant is not required, however, to provide Landlord with any portion(s) of the Haz Mat Documents containing information of a proprietary nature which, in and of themselves, do not contain a reference to any Hazardous Materials or hazardous activities. It is not the intent of this Section to provide Landlord with information which could be detrimental to Tenant's business should such information become possessed by Tenant's competitors.

(c) **Tenant Representation and Warranty**. Tenant hereby represents and warrants to Landlord that (i) neither Tenant nor any of its legal predecessors has been required by any prior landlord, lender or Governmental Authority at any time to take remedial action in connection with Hazardous Materials contaminating a property which contamination was permitted by Tenant of such predecessor or resulted from Tenant's or such predecessor's action or use of the property in question, and (ii) Tenant is not subject to any enforcement order issued by any Governmental Authority in connection with the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials (including, without limitation, any order related to the failure to make a required reporting to any Governmental Authority). If Landlord determines that this representation and warranty was not true as of the date of this lease, Landlord shall have the right to terminate this Lease in Landlord's sole and absolute discretion.

(d) **Testing**. Landlord shall have the right to conduct annual tests of the Premises to determine whether any contamination of the Premises or the Project has occurred as a result of Tenant's use. Tenant shall be required to pay the cost of such annual test of the Premises only if there is violation of this Section 30 or if contamination for which Tenant is responsible under this Section 30 is identified; provided, however, that if Tenant conducts its own tests of the Premises using third party contractors and test procedures acceptable to Landlord which tests are certified to Landlord, Landlord shall accept such

tests in lieu of the annual tests to be paid for by Tenant. In addition, at any time, and from time to time, prior to the expiration or earlier termination of the Term, Landlord shall have the right to conduct appropriate tests of the Premises and the Project to determine if contamination has occurred as a result of Tenant's use of the Premises. In connection with such testing, upon the request of Landlord, Tenant shall deliver to Landlord or its consultant such non-proprietary information concerning the use of Hazardous Materials in or about the Premises by Tenant or any Tenant Party. If contamination has occurred for which Tenant is liable under this Section 30, Tenant shall pay all costs to conduct such tests. If no such contamination is found, Landlord shall pay the costs of such tests (which shall not constitute an Operating Expense). Landlord shall provide Tenant with a copy of all third party, non-confidential reports and tests of the Premises made by or on behalf of Landlord during the Term without representation or warranty and subject to a confidentiality agreement. Tenant shall, at its sole cost and expense, promptly and satisfactorily remediate any environmental conditions identified by such testing in accordance with all Environmental Requirements. Landlord's receipt of or satisfaction with any environmental assessment in no way waives any rights which Landlord may have against Tenant.

(e) **Control Areas**. Tenant shall be allowed to utilize up to its pro rata share of the Hazardous Materials inventory within any control area or zone (located within the Premises), as designated by the applicable building code, for chemical use or storage. As used in the preceding sentence, Tenant's pro rata share of any control areas or zones located within the Premises shall be determined based on the rentable square footage that Tenant leases within the applicable control area or zone. For purposes of example only, if a control area or zone contains 10,000 rentable square feet and 2,000 rentable square feet of a tenant's premises are located within such control area or zone (while such premises as a whole contains 5,000 rentable square feet), the applicable tenant's pro rata share of such control area would be 20%.

(f) **Underground Tanks**. If underground or other storage tanks storing Hazardous Materials located on the Premises or the Project are used by Tenant or are hereafter placed on the Premises or the Project by Tenant, Tenant shall install, use, monitor, operate, maintain, upgrade and manage such storage tanks, maintain appropriate records, obtain and maintain appropriate insurance, implement reporting procedures, properly close any underground storage tanks, and take or cause to be taken all other actions necessary or required under applicable state and federal Legal Requirements, as such now exists or may hereafter be adopted or amended in connection with the installation, use, maintenance, management, operation, upgrading and closure of such storage tanks.

(g) **Tenant's Obligations**. Tenant's obligations under this Section 30 shall survive the expiration or earlier termination of the Lease. During any period of time after the expiration or earlier termination of this Lease required by Tenant or Landlord to complete the removal from the Premises of any Hazardous Materials (including, without limitation, the release and termination of any licenses or permits restricting the use of the Premises and the completion of the approved Surrender Plan), Tenant shall continue to pay the full Rent in accordance with this Lease for any portion of the Premises not relet by Landlord in Landlord's sole discretion, which Rent shall be prorated daily.

(h) **Definitions**. As used herein, the term "**Environmental Requirements**" means all applicable present and future statutes, regulations, ordinances, rules, codes, judgments, orders or other similar enactments of any Governmental Authority regulating or relating to health, safety, or environmental conditions on, under, or about the Premises or the Project, or the environment, including without limitation, the following: the Comprehensive Environmental Response, Compensation and Liability Act; the Resource Conservation and Recovery Act; and all state and local counterparts thereto, and any regulations or policies promulgated or issued thereunder. As used herein, the term "**Hazardous Materials**" means and includes any substance, material, waste, pollutant, or contaminant listed or defined as hazardous or toxic, or regulated by reason of its impact or potential impact on humans, animals and/or the environment under any Environmental Requirements, asbestos and petroleum, including crude oil or any fraction thereof, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). As defined in Environmental Requirements, Tenant is and shall be deemed to be the "**operator**" of Tenant's "**facility**" and the "**owner**" of all Hazardous Materials brought on the Premises by Tenant or any Tenant Party, and the wastes, by-products, or residues generated, resulting, or produced therefrom.

31. **Tenant's Remedies/Limitation of Liability**. Landlord shall not be in default hereunder unless Landlord fails to perform any of its obligations hereunder within 30 days after written notice from Tenant specifying such failure (unless such performance will, due to the nature of the obligation, require a period of time in excess of 30 days, then after such period of time as is reasonably necessary). Upon any default by Landlord, Tenant shall give notice by registered or certified mail to any Holder of a Mortgage covering the Premises and to any landlord of any lease of property in or on which the Premises are located and Tenant shall offer such Holder and/or landlord a reasonable opportunity to cure the default, including time to obtain possession of the Project by power of sale or a judicial action if such should prove necessary to effect a cure; provided Landlord shall have furnished to Tenant in writing the names and addresses of all such persons who are to receive such notices. All obligations of Landlord hereunder shall be construed as covenants, not conditions; and, except as may be otherwise expressly provided in this Lease, Tenant may not terminate this Lease for breach of Landlord's obligations hereunder.

All obligations of Landlord under this Lease will be binding upon Landlord only during the period of its ownership of the Premises and not thereafter. The term "**Landlord**" in this Lease shall mean only the owner for the time being of the Premises. Upon the transfer by such owner of its interest in the Premises, such owner shall thereupon be released and discharged from all obligations of Landlord thereafter accruing, but such obligations shall be binding during the Term upon each new owner for the duration of such owner's ownership.

32. **Inspection and Access**. Landlord and its agents, representatives, and contractors may enter the Premises at any reasonable time to inspect the Premises and to make such repairs as may be required or permitted pursuant to this Lease. Landlord shall use reasonable efforts to minimize interruption of Tenant's business during such inspections or repairs. Landlord and Landlord's representatives may enter the Premises during business hours on not less than 48 hours advance written notice (except in the case of emergencies in which case no such notice shall be required and such entry may be at any time) for the purpose of effecting any such repairs, inspecting the Premises, showing the Premises to prospective purchasers and, during the last year of the Term, to prospective tenants or for any other business purpose. Landlord may erect a suitable sign on the Premises stating the Premises are available to let or that the Project is available for sale. Landlord may grant easements, make public dedications, designate Common Areas and create restrictions on or about the Premises, provided that no such easement, dedication, designation or restriction materially, adversely affects Tenant's use or occupancy of the Premises for the Permitted Use. At Landlord's request, Tenant shall execute such instruments as may be necessary for such easements, dedications or restrictions. Tenant shall at all times, except in the case of emergencies, have the right to escort Landlord or its agents, representatives, contractors or guests while the same are in the Premises, provided such escort does not materially and adversely affect Landlord's access rights hereunder.

33. **Security**. Tenant acknowledges and agrees that security devices and services, if any, while intended to deter crime may not in given instances prevent theft or other criminal acts and that Landlord is not providing any security services with respect to the Premises. Tenant agrees that Landlord shall not be liable to Tenant for, and Tenant waives any claim against Landlord with respect to, any loss by theft or any other damage suffered or incurred by Tenant in connection with any unauthorized entry into the Premises or any other breach of security with respect to the Premises. Tenant shall be solely responsible for the personal safety of Tenant's officers, employees, agents, contractors, guests and invitees while any such person is in, on or about the Premises and/or the Project. Tenant shall at Tenant's cost obtain insurance coverage to the extent Tenant desires protection against such criminal acts.

34. **Force Majeure**. Except for the payment of Rent, neither Tenant nor Landlord shall not be responsible or liable for delays in the performance of its obligations hereunder when caused by, related to, or arising out of acts of God, sinkholes or subsidence, strikes, lockouts, or other labor disputes, embargoes, quarantines, weather, national, regional, or local disasters, calamities, or catastrophes, inability to obtain labor or materials (or reasonable substitutes therefor) at reasonable costs or failure of, or inability to obtain, utilities necessary for performance, governmental restrictions, orders, limitations, regulations, or controls, national emergencies, delay in issuance or revocation of permits, enemy or hostile governmental action, terrorism, insurrection, riots, civil disturbance or commotion, fire or other casualty, and other causes or events beyond the reasonable control of such party ("**Force Majeure**").

35. **Brokers**. Landlord and Tenant each represents and warrants that it has not dealt with any broker, agent or other person (collectively, "**Broker**") in connection with this transaction and that no Broker brought about this transaction, other than Jones Lang LaSalle. Landlord and Tenant each hereby agree to indemnify and hold the other harmless from and against any claims by any Broker, other than the broker, if any named in this Section 35, claiming a commission or other form of compensation by virtue of having dealt with Tenant or Landlord, as applicable, with regard to this leasing transaction. Landlord shall be responsible for all fees of Jones Lang LaSalle arising out of the execution of this Lease in accordance with the terms of a separate written agreement between Jones Lang LaSalle and Landlord.

36. **Limitation on Landlord's Liability**. NOTWITHSTANDING ANYTHING SET FORTH HEREIN OR IN ANY OTHER AGREEMENT BETWEEN LANDLORD AND TENANT TO THE CONTRARY: (A) LANDLORD SHALL NOT BE LIABLE TO TENANT OR ANY OTHER PERSON FOR (AND TENANT AND EACH SUCH OTHER PERSON ASSUME ALL RISK OF) LOSS, DAMAGE OR INJURY, WHETHER ACTUAL OR CONSEQUENTIAL TO: TENANT'S PERSONAL PROPERTY OF EVERY KIND AND DESCRIPTION, INCLUDING, WITHOUT LIMITATION TRADE FIXTURES, EQUIPMENT, INVENTORY, SCIENTIFIC RESEARCH, SCIENTIFIC EXPERIMENTS, LABORATORY ANIMALS, PRODUCT, SPECIMENS, SAMPLES, AND/OR SCIENTIFIC, BUSINESS, ACCOUNTING AND OTHER RECORDS OF EVERY KIND AND DESCRIPTION KEPT AT THE PREMISES AND ANY AND ALL INCOME DERIVED OR DERIVABLE THEREFROM; (B) THERE SHALL BE NO PERSONAL RECOURSE TO LANDLORD FOR ANY ACT OR OCCURRENCE IN, ON OR ABOUT THE PREMISES OR ARISING IN ANY WAY UNDER THIS LEASE OR ANY OTHER AGREEMENT BETWEEN LANDLORD AND TENANT WITH RESPECT TO THE SUBJECT MATTER HEREOF AND ANY LIABILITY OF LANDLORD HEREUNDER SHALL BE STRICTLY LIMITED SOLELY TO LANDLORD'S INTEREST IN THE PROJECT OR ANY PROCEEDS FROM SALE OR CONDEMNATION THEREOF AND ANY INSURANCE PROCEEDS PAYABLE IN RESPECT OF LANDLORD'S INTEREST IN THE PROJECT OR IN CONNECTION WITH ANY SUCH LOSS; AND (C) IN NO EVENT SHALL ANY PERSONAL LIABILITY BE ASSERTED AGAINST LANDLORD IN CONNECTION WITH THIS LEASE NOR SHALL ANY RECOURSE BE HAD TO ANY OTHER PROPERTY OR ASSETS OF LANDLORD OR ANY OF LANDLORD'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS. UNDER NO CIRCUMSTANCES SHALL LANDLORD OR ANY OF LANDLORD'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS BE LIABLE FOR INJURY TO TENANT'S BUSINESS OR FOR ANY LOSS OF INCOME OR PROFIT THEREFROM.

37. **Severability**. If any clause or provision of this Lease is illegal, invalid or unenforceable under present or future laws, then and in that event, it is the intention of the parties hereto that the remainder of this Lease shall not be affected thereby. It is also the intention of the parties to this Lease that in lieu of each clause or provision of this Lease that is illegal, invalid or unenforceable, there be added, as a part of this Lease, a clause or provision as similar in effect to such illegal, invalid or unenforceable clause or provision as shall be legal, valid and enforceable.

38. **Signs; Exterior Appearance**. Tenant shall not, without the prior written consent of Landlord, which may be granted or withheld in Landlord's sole discretion: (i) attach any awnings, exterior lights, decorations, balloons, flags, pennants, banners, painting or other projection to any outside wall of the Project, (ii) use any curtains, blinds, shades or screens other than Landlord's standard window

coverings, (iii) coat or otherwise sunscreen the interior or exterior of any windows, (iv) place any bottles, parcels, or other articles on the window sills, (v) place any equipment, furniture or other items of personal property on any exterior balcony, or (vi) paint, affix or exhibit on any part of the Premises or the Project any signs, notices, window or door lettering, placards, decorations, or advertising media of any type which can be viewed from the exterior of the Premises. Interior signs on doors and the directory tablet shall be inscribed, painted or affixed for Tenant by Landlord at the sole cost and expense of Tenant, and shall be of a size, color and type acceptable to Landlord. Nothing may be placed on the exterior of corridor walls or corridor doors other than Landlord's standard lettering. The directory tablet shall be provided exclusively for the display of the name and location of tenants. Tenant may, at Tenant's sole cost, install signage with its name and logo on the entry doors to the Premises; provided, however, that such signage, without limitation, the size, color, type and location, shall be subject to Landlord's prior written approval, which shall not be unreasonably withheld and shall be consistent with Landlord's signage program at the Project and applicable Legal Requirements.

39. **Right to Extend Term**. Tenant shall have the right to extend the Term of the Lease upon the following terms and conditions:

(a) **Extension Rights**. Tenant shall have 2 consecutive rights (each, an "**Extension Right**") to extend the term of this Lease for 1 year each (each, an "**Extension Term**") on the same terms and conditions as this Lease (other than with respect to Base Rent) by giving Landlord written notice of its election to exercise each Extension Right at least 6 months prior, and no earlier than 9 months prior, to the expiration of the Base Term of the Lease or the expiration of any prior Extension Term.

Upon the commencement of any Extension Term, Base Rent shall be payable at the Market Rate (as defined below). As used herein, "**Market Rate**" shall mean the then market rental rate as determined by Landlord and agreed to by Tenant.

If, on or before the date which is 120 days prior to the expiration of the Base Term of this Lease or the expiration of any prior Extension Term, Tenant has not agreed with Landlord's determination of the Market Rate during the Extension Term after negotiating in good faith, Tenant shall be deemed to have elected arbitration as described in Section 39(b). Tenant acknowledges and agrees that, if Tenant has elected to exercise an Extension Right by delivering notice to Landlord as required in this Section 39(a), Tenant shall have no right thereafter to rescind or elect not to extend the term of the Lease for such Extension Term.

Notwithstanding anything to the contrary contained in this Lease, if Tenant exercises its Extension Right hereunder, upon the commencement of the Extension Term, Tenant's Share of each earthquake deductible or occurrence of uninsured earthquake damage affecting the Premises shall not exceed $1.50 per rentable square foot of the Premises during each such 1 year Extension Term (the "**Extension Cap**").

(b) **Arbitration**.

(i) Within 10 days of Tenant's notice to Landlord of its election (or deemed election) to arbitrate Market Rate, each party shall deliver to the other a proposal containing the Market Rate that the submitting party believes to be correct ("**Extension Proposal**"). If either party fails to timely submit an Extension Proposal, the other party's submitted proposal shall determine the Base Rent for the Extension Term. If both parties submit Extension Proposals, then Landlord and Tenant shall meet within 7 days after delivery of the last Extension Proposal and make a good faith attempt to mutually appoint a single Arbitrator (and defined below) to determine the Market Rate. If Landlord and Tenant are unable to agree upon a single Arbitrator, then each shall, by written notice delivered to the other within 10 days after the meeting, select an Arbitrator. If either party fails to timely give notice of its selection for an Arbitrator, the other party's submitted proposal shall determine the Base Rent for the Extension Term. The 2 Arbitrators so appointed

shall, within 5 business days after their appointment, appoint a third Arbitrator. If the 2 Arbitrators so selected cannot agree on the selection of the third Arbitrator within the time above specified, then either party, on behalf of both parties, may request such appointment of such third Arbitrator by application to any state court of general jurisdiction in the jurisdiction in which the Premises are located, upon 10 days prior written notice to the other party of such intent.

(ii) The decision of the Arbitrator(s) shall be made within 30 days after the appointment of a single Arbitrator or the third Arbitrator, as applicable. The decision of the single Arbitrator shall be final and binding upon the parties. The average of the two closest Arbitrators in a three Arbitrator panel shall be final and binding upon the parties. Each party shall pay the fees and expenses of the Arbitrator appointed by or on behalf of such party and the fees and expenses of the third Arbitrator shall be borne equally by both parties. If the Market Rate is not determined by the first day of the Extension Term, then Tenant shall pay Landlord Base Rent in an amount equal to the Base Rent in effect immediately prior to the Extension Term and increased by the Rent Adjustment Percentage until such determination is made. After the determination of the Market Rate, the parties shall make any necessary adjustments to such payments made by Tenant. Landlord and Tenant shall then execute an amendment recognizing the Market Rate for the Extension Term.

(iii) An "**Arbitrator**" shall be any person appointed by or on behalf of either party or appointed pursuant to the provisions hereof and: (i) shall be (A) a member of the American Institute of Real Estate Appraisers with not less than 10 years of experience in the appraisal of improved office and high tech industrial real estate in the greater San Francisco peninsula area, or (B) a licensed commercial real estate broker with not less than 15 years experience representing landlords and/or tenants in the leasing of high tech or life sciences space in the greater San Francisco peninsula area, (ii) devoting substantially all of their time to professional appraisal or brokerage work, as applicable, at the time of appointment and (iii) be in all respects impartial and disinterested.

(c) **Rights Personal**. The Extension Rights are personal to Tenant and are not assignable without Landlord's consent, which may be granted or withheld in Landlord's sole discretion separate and apart from any consent by Landlord to an assignment of Tenant's interest in the Lease, except that they may be assigned in connection with any Permitted Assignment of this Lease.

(d) **Exceptions**. Notwithstanding anything set forth above to the contrary, the Extension Rights shall, at Landlord's option, not be in effect and Tenant may not exercise any of the Extension Rights:

(i) during any period of time that Tenant is in Default under any provision of this Lease; or

(ii) if Tenant has been in Default under any provision of this Lease 3 or more times, whether or not the Defaults are cured, during the 12 month period immediately prior to the date that Tenant intends to exercise an Extension Right, whether or not the Defaults are cured.

(e) **No Extensions**. The period of time within which any Extension Rights may be exercised shall not be extended or enlarged by reason of Tenant's inability to exercise the Extension Rights.

(f) **Termination**. The Extension Rights shall, at Landlord's option terminate and be of no further force or effect even after Tenant's due and timely exercise of an Extension Right, if, after such exercise, but prior to the commencement date of an Extension Term, (i) Tenant fails to timely cure any default by Tenant under this Lease; or (ii) Tenant has Defaulted 3 or more times during the period from the date of the exercise of an Extension Right to the date of the commencement of the Extension Term, whether or not such Defaults are cured.

40. **Shared Suite Area**.

(a) **License**. During the Term, Landlord hereby grants to Tenant, and Tenant hereby accepts, a non-exclusive license ("**License**"), together with the other occupants of Suite A in the Building, to use those certain areas located within Suite A described as the "**Shared Suite Area**" on **Exhibit G**, subject to the terms and provisions of this Section 40. The Shared Suite Area shall include those certain restrooms, lobby and break room shown on **Exhibit G**.

(b) **Use**. Tenant shall exercise its rights under this Section 40 and use the Shared Suite Area in a manner that complies with all applicable Legal Requirements and any and all reasonable rules and regulations which may be adopted by Landlord from time to time for the use of the Shared Suite Area by all parties entitled to use the same and which shall be applied to all users of the Shared Suite Area in a non-discriminatory manner. Tenant agrees to cause its employees who will be using the Shared Suite Area to complete all training programs, if any, mandated by Landlord relating to the use of the Shared Suite Area.

Tenant shall use the Shared Suite Area in a manner that will not interfere with the rights of any other Suite A tenants, other licensees or Landlord's service providers. Landlord assumes no responsibility for enforcing Tenant's rights or for protecting the Shared Suite Area from interference or use from any person including, without limitation, other tenants or licensees of Suite A. Landlord may terminate the License granted to Tenant hereunder with respect to the Shared Suite Area at any time during the Term for Tenant's failure to comply with the terms of this Section 40 or any rules and regulations adopted by Landlord with respect to the Shared Suite Area within a reasonable period after notice thereof from Landlord; provided, however, that in no event shall Tenant's rights be terminated with respect to the bathroom, lobby, hallways or breakroom.

(c) **Relocation and Modification of Shared Suite Area**. Tenant acknowledges and agrees that Landlord shall have the right at any time and from time to time to reconfigure, relocate to another area of Suite A, modify or remove on a temporary basis the Shared Suite Area and/or, to expand any of the services (if any) provided therein and/or, upon advance notice to Tenant, to revise any of the services (if any) provided therein, and to add, change, reconfigure, remove on a temporary basis or relocate to another area within Suite A any of the Equipment (as hereinafter defined) located therein. Landlord shall endeavor to minimize interruption of Tenant's use of the Shared Suite Area in connection with any reconfiguration, relocation, modification or removal of the Shared Suite Area under this Section 40(c).

(d) **Waiver**.

(i) Landlord's sole obligation for providing any equipment, systems, furnishings or personal property to the Shared Suite Area whether or not affixed to the Building (collectively, "**Equipment**") shall be (i) to provide such Equipment as is determined by Landlord in its sole and absolute discretion, but Landlord shall not discontinue providing a bathroom, lobby or breakroom, and (ii) to contract with a third party to maintain the Equipment that is deemed by Landlord (in its sole and absolute discretion) to need periodic maintenance per the manufacturer's standard maintenance guidelines. Except as set forth in the preceding sentence, Landlord shall have no obligation to provide Tenant with operational Equipment, back-up Equipment or back-up utilities or to supervise, oversee or confirm that the third party maintaining the Equipment is maintaining the Equipment as per the manufacturer's standard guidelines or otherwise. During any period of replacement, repair or maintenance of the Equipment when such Equipment is not operational, including any delays thereto due to the inability to obtain parts or replacements, Landlord shall have no obligation to provide Tenant with alternative or back-up Equipment. Tenant expressly acknowledges and agrees that Landlord does not guaranty that the Equipment will be operational at all times, will function or perform adequately and Landlord shall not be liable for any damages resulting from the failure of such Equipment.

(ii) Tenant acknowledges and agrees that there are no warranties of any kind, whether express or implied, made by Landlord or otherwise with respect to the Shared Suite Area or any Equipment or services (if any) provided therein, and Tenant disclaims any and all such warranties.

(iii) Tenant acknowledges and agrees that Landlord is under no obligation to provide any type of instruction or implement any training programs relating to the use of the Shared Suite Area for Tenant or any other parties entitled to use the Shared Suite Area.

41. **Miscellaneous**.

(a) **Notices**. All notices or other communications between the parties shall be in writing and shall be deemed duly given upon delivery or refusal to accept delivery by the addressee thereof if delivered in person, or upon actual receipt if delivered by reputable overnight guaranty courier, addressed and sent to the parties at their addresses set forth above. Landlord and Tenant may from time to time by written notice to the other designate another address for receipt of future notices.

(b) **Joint and Several Liability**. If and when included within the term "**Tenant**," as used in this instrument, there is more than one person or entity, each shall be jointly and severally liable for the obligations of Tenant.

(c) **Financial Information**. Upon Landlord's request, Tenant shall furnish Landlord with true and complete copies of (i) Tenant's most recent audited annual financial statements within 90 days of the end of each of Tenant's fiscal years during the Term, (ii) Tenant's most recent unaudited quarterly financial statements within 45 days of the end of each of Tenant's first three fiscal quarters of each of Tenant's fiscal years during the Term, (iii) at Landlord's request from time to time, updated business plans, including cash flow projections and/or pro forma balance sheets and income statements, (iv) corporate brochures and/or profiles prepared by Tenant for prospective investors, and (v) any other financial information or summaries that Tenant typically provides to its lenders. Landlord shall treat all of the information which Tenant provides to Landlord pursuant to this Section 41(c) as confidential information belonging to Tenant and shall not be disclosed to any third parties unless such parties have a need to know in connection with any acquisition or financing related to the Property and such parties have agreed to maintain the confidentiality of such information. Notwithstanding the foregoing, in no event shall Tenant be required to provide any financial information to Landlord which Tenant does not otherwise prepare (or cause to be prepared) for its own purposes.

(d) **Recordation**. Neither this Lease nor a memorandum of lease shall be filed by or on behalf of Tenant in any public record. Landlord may prepare and file, and upon request by Landlord Tenant will execute, a memorandum of lease.

(e) **Interpretation**. The normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Lease or any exhibits or amendments hereto. Words of any gender used in this Lease shall be held and construed to include any other gender, and words in the singular number shall be held to include the plural, unless the context otherwise requires. The captions inserted in this Lease are for convenience only and in no way define, limit or otherwise describe the scope or intent of this Lease, or any provision hereof, or in any way affect the interpretation of this Lease.

(f) **Not Binding Until Executed**. The submission by Landlord to Tenant of this Lease shall have no binding force or effect, shall not constitute an option for the leasing of the Premises, nor confer any right or impose any obligations upon either party until execution of this Lease by both parties.

(g) **Limitations on Interest**. It is expressly the intent of Landlord and Tenant at all times to comply with applicable law governing the maximum rate or amount of any interest payable on or in connection with this Lease. If applicable law is ever judicially interpreted so as to render usurious any interest called for under this Lease, or contracted for, charged, taken, reserved, or received with respect to this Lease, then it is Landlord's and Tenant's express intent that all excess amounts theretofore collected by Landlord be credited on the applicable obligation (or, if the obligation has been or would thereby be paid in full, refunded to Tenant), and the provisions of this Lease immediately shall be deemed reformed and the amounts thereafter collectible hereunder reduced, without the necessity of the execution of any new document, so as to comply with the applicable law, but so as to permit the recovery of the fullest amount otherwise called for hereunder.

(h) **Choice of Law**. Construction and interpretation of this Lease shall be governed by the internal laws of the state in which the Premises are located, excluding any principles of conflicts of laws.

(i) **Time**. Time is of the essence as to the performance of Tenant's obligations under this Lease.

(j) **OFAC**. Tenant, and all beneficial owners of Tenant, are currently (a) in compliance with and shall at all times during the Term of this Lease remain in compliance with the regulations of the Office of Foreign Assets Control ("**OFAC**") of the U.S. Department of Treasury and any statute, executive order, or regulation relating thereto (collectively, the "**OFAC Rules**"), (b) not listed on, and shall not during the term of this Lease be listed on, the Specially Designated Nationals and Blocked Persons List maintained by OFAC and/or on any other similar list maintained by OFAC or other governmental authority pursuant to any authorizing statute, executive order, or regulation, and (c) not a person or entity with whom a U.S. person is prohibited from conducting business under the OFAC Rules.

(k) **Incorporation by Reference**. All exhibits and addenda attached hereto are hereby incorporated into this Lease and made a part hereof. If there is any conflict between such exhibits or addenda and the terms of this Lease, such exhibits or addenda shall control.

(l) **Entire Agreement**. This Lease, including the exhibits attached hereto, constitutes the entire agreement between Landlord and Tenant pertaining to the subject matter hereof and supersedes all prior and contemporaneous agreements, understandings, letters of intent, negotiations and discussions, whether oral or written, of the parties, and there are no warranties, representations or other agreements, express or implied, made to either party by the other party in connection with the subject matter hereof except as specifically set forth herein.

(m) **No Accord and Satisfaction**. No payment by Tenant or receipt by Landlord of a lesser amount than the monthly installment of Base Rent or any Additional Rent will be other than on account of the earliest stipulated Base Rent and Additional Rent, nor will any endorsement or statement on any check or letter accompanying a check for payment of any Base Rent or Additional Rent be an accord and satisfaction. Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such Rent or to pursue any other remedy provided in this Lease.

(n) **Hazardous Activities**. Notwithstanding any other provision of this Lease, Landlord, for itself and its employees, agents and contractors, reserves the right to refuse to perform any repairs or services in any portion of the Premises which, pursuant to Tenant's routine safety guidelines, practices or custom or prudent industry practices, require any form of protective clothing or equipment other than safety glasses. In any such case, Tenant shall contract with parties who are acceptable to Landlord, in Landlord's reasonable discretion, for all such repairs and services, and Landlord shall, to the extent required, equitably adjust Tenant's Share of Operating Expenses in respect of such repairs or services to reflect that Landlord is not providing such repairs or services to Tenant.

[Signatures on next page]

IN WITNESS WHEREOF, Landlord and Tenant have executed this Lease as of the day and year first above written.

TENANT:

ALLAKOS, INC.,
a Delaware corporation

By: /s/ Chris Bebbington
Its: CEO

LANDLORD:

ARE-SAN FRANCISCO NO. 29, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P., a Delaware limited partnership, managing member

By: ARE-QRS CORP.,
a Maryland corporation,
general partner

By: /s/ Eric Johnson
Its: VP, Real Estate Legal Affairs

EXHIBIT A TO LEASE

DESCRIPTION OF PREMISES

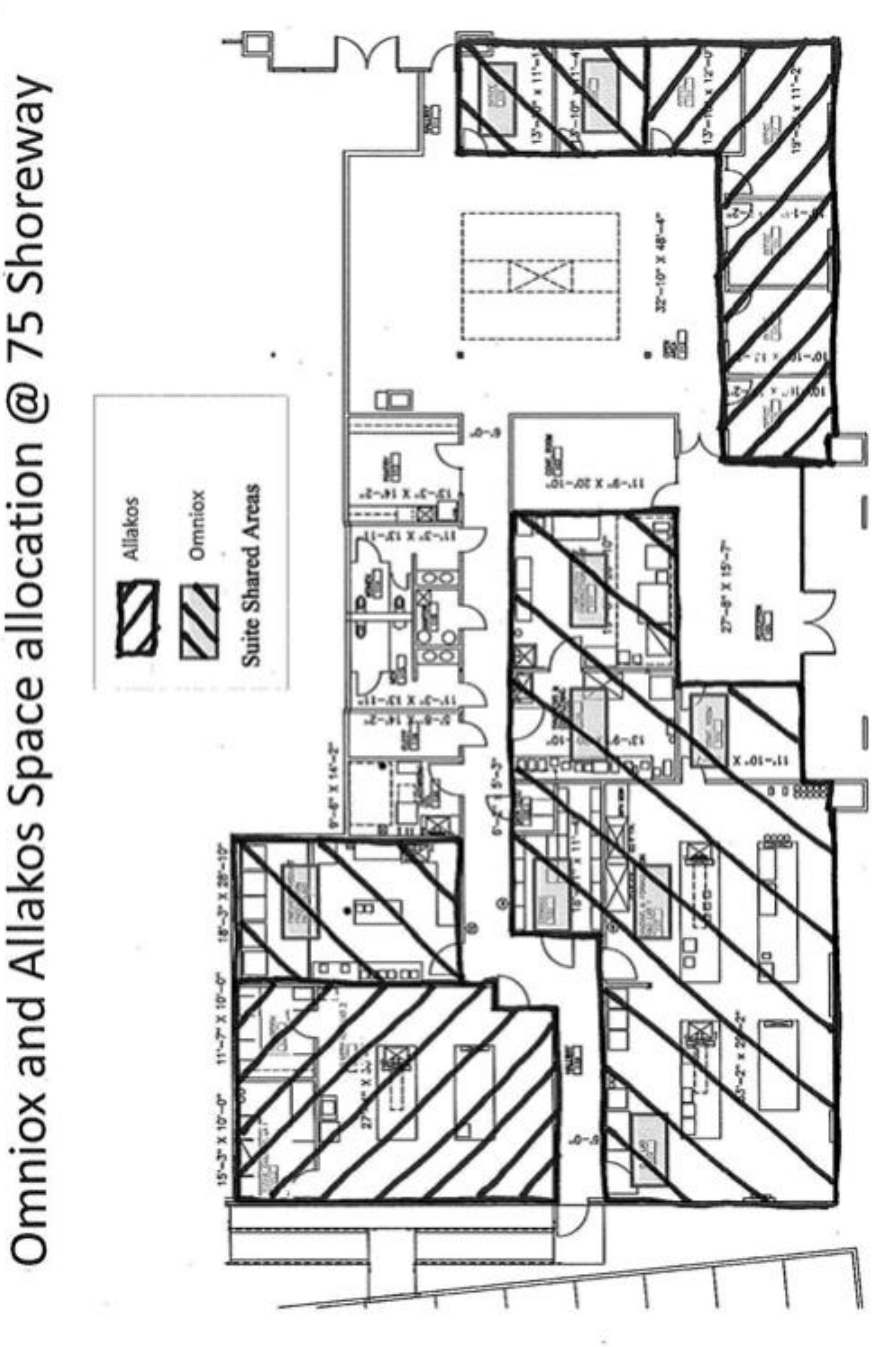
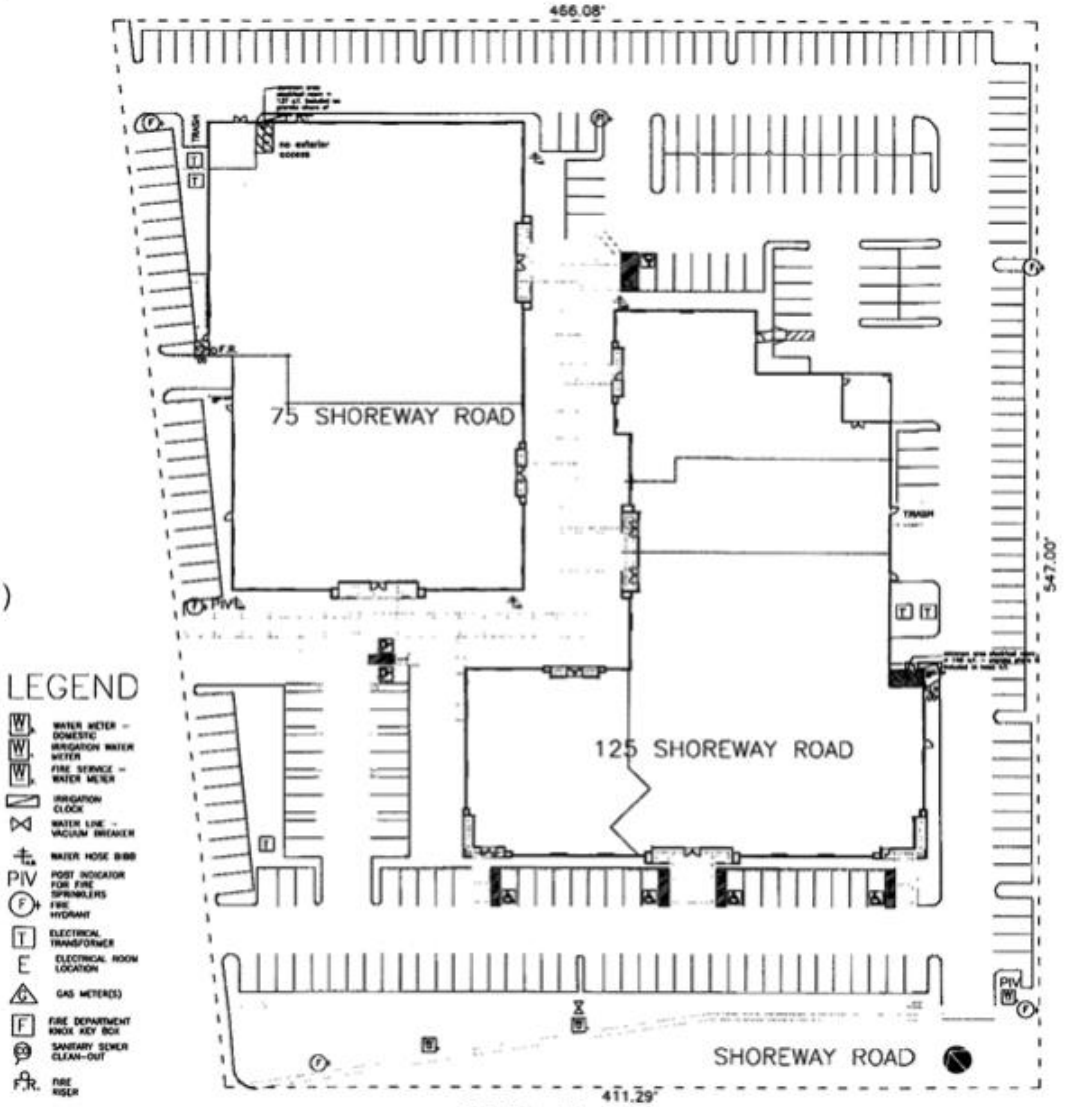


EXHIBIT B TO LEASE

DESCRIPTION OF PROJECT



SITE PLAN
WDT SHOREWAY
75 & 125 Shoreway Road, San Carlos

EXHIBIT C TO LEASE

LANDLORD'S WORK

Project: Omniox & Allakos TI Estimate

Location: 75 Shoreway Suite A
San Carlos, CA

Est. No. 3
Est. by: MKS

Date: April 27, 2013

BUDGET
COST BREAKDOWN

CSI CODE	CSI CODE DESCRIPTION	ALLAKOS COST	OMNIOX COST	AUTOCLAVE COST	TOTAL COST	ITEM DESCRIPTION
	DIRECT COSTS					
20500	DEMOLITION	0	0	0	0	NIC. See ALT #1 below
67000	LAB CASEWORK	1,650	0	0	1,650	For Allakos, scope includes removal of existing 9ft base cabinet and existing tall cabinet in RM125.1, cut epoxy top, provide end support for epoxy top in RM125.1, reinstall 9ft cabinet and tall cabinet in RM125. Note that the 9ft cabinet will have a gap against the wall due to the existing wiremold.
92500	GYPSUM BOARD	880	0	0	880	For Allakos, scope includes wall patch after cabinet removal and prep for paint.
96800	FLOOR COVERING	434	0	0	434	For Allakos, scope includes installation of rubber base where needed.
98500	EPOXY COATING	0	3,189	0	3,189	Includes demo of existing VCT, grind down bolts, set-up, moisture barrier, new 2-part epoxy flooring, cabinet to stay in place.
99000	PAINTING	452	0	0	452	For Allakos, scope includes paint on affected walls in RM125.1.
130000	SPECIAL CONSTRUCTION	0	0	0	0	NIC. Installation of cagewash, autoclave, steam generator is by Omniox.
154000	PLUMBING	0	0	4,911	4,911	Includes new hot and cold supply from existing service in tenant space for autoclave, new drain pipe from autoclave to existing floor sink, pipe to be run exposed, no walls will be opened to install new pipe, all necessary fittings, hook up from generator to autoclave.
155000	HVAC	0	1,850	2,850	4,700	For Omniox, scope includes addition of supply register, supply line to tap in to existing supply air above adjacent lab; capture hood in glasswash room.
160000	ELECTRICAL	2,025	9,280	378	11,683	For Allakos, scope includes two dedicated 220 outlets in an existing wiremold in RM125, reroute 20A circuits as needed, blank off unused outlets in RM125.1, cut approximately 4-6' of existing 4000 wiremold in RM125 to create more room for tall cabinet, labeling and panel schedule changes as required. For Omniox, scope includes reconnecting power to existing glasswash using existing circuits, power to new autoclave, power to new steam generator 480 dedicated for steam generator, new wiremold in RM122, new dedicated 120v outlets for equipment in RM122, EM dedicated 208V 1 phase for -80 in RM124, homerun conduit and wiring to existing panel, labeling and panel schedule changes. Pricing is per Omniox latest TI clarifications based on 4/21 email
167200	LIFE SAFETY SYSTEM	0	0	0	0	NIC
167300	SECURITY ALARM SYSTEM	0	0	0	0	NIC
167400	COMMUNICATION CABLING	0	0	0	0	NIC
	SUB-TOTAL	5,441	14,319	8,139	27,899	
	GENERAL CONDITIONS					
1100000	PROJECT SUPERINTENDENT	796	1,868	0	2,664	
1150000	PROJECT MANAGER	279	651	0	930	part time as required
1200000	TEMPORARY FACILITIES	97	222	0	318	temp power distribution, water, phones, & toilets
1400000	SUPPLIES & SERVICES	72	169	0	241	photos & blueprints

Page 1

CSI CODE	CSI CODE DESCRIPTION	ALLAKOS COST	OMNIOX COST	AUTOCLAVE COST	TOTAL COST	ITEM DESCRIPTION
1500000	EQUIPMENT	75	176	850	1,101	small tools & supplies, fuel, misc. equipment rentals, forklift rental to receive autoclave
1700000	CLEAN UP	57	134	0	191	progressive & final clean up
	OTHER FEES					
1800000	DESIGN FEES	0	0	0	0	NIC
1900000	FEES	450	1,050	0	1,500	**Allowance for Building Permit**
1993000	GENERAL LIABILITY INSURANCE	87	223	108	418	excludes course of construction insurance
1994000	CONSTRUCTION CONTINGENCY	0	0	0	0	
1995000	OVERHEAD & PROFIT	368	941	455	1,763	
	TOTAL>>>>>	**$7,721**	**$19,753**	**$9,552**	**37,026**	
	ALTERNATES NOT INCLUDED ABOVE					
ALT #1	Cost to reinstall/hook up exisitng glass wash	-	$1,583		1,583	plumbing and electrical hook-ups to existing glasswash.
ALT #2	Seismic installation of lab autoclave/glasswash	-	$723		723	Manpower to install seismic braces at equipment. Material to be provided by Omniox.

EXHIBIT D TO LEASE

ACKNOWLEDGMENT OF COMMENCEMENT DATE

This **ACKNOWLEDGMENT OF COMMENCEMENT DATE** is made this day of , , between **ARE-SAN FRANCISCO NO. 29, LLC**, a Delaware limited liability company ("**Landlord**"), and **ALLAKOS, INC.**, a Delaware corporation, and is attached to and made a part of the Lease dated , (the "**Lease**"), by and between Landlord and Tenant. Any initially capitalized terms used but not defined herein shall have the meanings given them in the Lease.

Landlord and Tenant hereby acknowledge and agree, for all purposes of the Lease, that the Commencement Date of the Base Term of the Lease is , , the Rent Commencement Date is , and the termination date of the Base Term of the Lease shall be midnight on , . In case of a conflict between the terms of the Lease and the terms of this Acknowledgment of Commencement Date, this Acknowledgment of Commencement Date shall control for all purposes.

IN WITNESS WHEREOF, Landlord and Tenant have executed this ACKNOWLEDGMENT OF COMMENCEMENT DATE to be effective on the date first above written.

TENANT:

ALLAKOS, INC.,
a Delaware corporation

By: _____
Its: _____

LANDLORD:

ARE-SAN FRANCISCO NO. 29, LLC, a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P., a Delaware limited partnership, managing member

By: ARE-QRS CORP.,
a Maryland corporation,
general partner

By: _____
Its: _____

EXHIBIT E TO LEASE

Rules and Regulations

1. The sidewalk, entries, and driveways of the Project shall not be obstructed by Tenant, or any Tenant Party, or used by them for any purpose other than ingress and egress to and from the Premises.

2. Tenant shall not place any objects, including antennas, outdoor furniture, etc., in the parking areas, landscaped areas or other areas outside of its Premises, or on the roof of the Project.

3. Except for animals assisting the disabled, no animals shall be allowed in the offices, halls, or corridors in the Project.

4. Tenant shall not disturb the occupants of the Project or adjoining buildings by the use of any radio or musical instrument or by the making of loud or improper noises.

5. If Tenant desires telegraphic, telephonic or other electric connections in the Premises, Landlord or its agent will direct the electrician as to where and how the wires may be introduced; and, without such direction, no boring or cutting of wires will be permitted. Any such installation or connection shall be made at Tenant's expense.

6. Tenant shall not install or operate any steam or gas engine or boiler, or other mechanical apparatus in the Premises, except as specifically approved in the Lease. The use of oil, gas or inflammable liquids for heating, lighting or any other purpose is expressly prohibited. Explosives or other articles deemed extra hazardous shall not be brought into the Project.

7. Parking any type of recreational vehicles is specifically prohibited on or about the Project. Except for the overnight parking of operative vehicles, no vehicle of any type shall be stored in the parking areas at any time. In the event that a vehicle is disabled, it shall be removed within 48 hours. There shall be no "For Sale" or other advertising signs on or about any parked vehicle. All vehicles shall be parked in the designated parking areas in conformity with all signs and other markings. All parking will be open parking, and no reserved parking, numbering or lettering of individual spaces will be permitted except as specified by Landlord.

8. Tenant shall maintain the Premises free from rodents, insects and other pests.

9. Landlord reserves the right to exclude or expel from the Project any person who, in the judgment of Landlord, is intoxicated or under the influence of liquor or drugs or who shall in any manner do any act in violation of the Rules and Regulations of the Project.

10. Tenant shall not cause any unnecessary labor by reason of Tenant's carelessness or indifference in the preservation of good order and cleanliness. Landlord shall not be responsible to Tenant for any loss of property on the Premises, however occurring, or for any damage done to the effects of Tenant by the janitors or any other employee or person.

11. Tenant shall give Landlord prompt notice of any defects in the water, lawn sprinkler, sewage, gas pipes, electrical lights and fixtures, heating apparatus, or any other service equipment affecting the Premises.

12. Tenant shall not permit storage outside the Premises, including without limitation, outside storage of trucks and other vehicles, or dumping of waste or refuse or permit any harmful materials to be placed in any drainage system or sanitary system in or about the Premises.

13. All moveable trash receptacles provided by the trash disposal firm for the Premises must be kept in the trash enclosure areas, if any, provided for that purpose.

14. No auction, public or private, will be permitted on the Premises or the Project.

15. No awnings shall be placed over the windows in the Premises except with the prior written consent of Landlord.

16. The Premises shall not be used for lodging, sleeping or cooking or for any immoral or illegal purposes or for any purpose other than that specified in the Lease. No gaming devices shall be operated in the Premises.

17. Tenant shall ascertain from Landlord the maximum amount of electrical current which can safely be used in the Premises, taking into account the capacity of the electrical wiring in the Project and the Premises and the needs of other tenants, and shall not use more than such safe capacity. Landlord's consent to the installation of electric equipment shall not relieve Tenant from the obligation not to use more electricity than such safe capacity.

18. Tenant assumes full responsibility for protecting the Premises from theft, robbery and pilferage.

19. Tenant shall not install or operate on the Premises any machinery or mechanical devices of a nature not directly related to Tenant's ordinary use of the Premises and shall keep all such machinery free of vibration, noise and air waves which may be transmitted beyond the Premises.

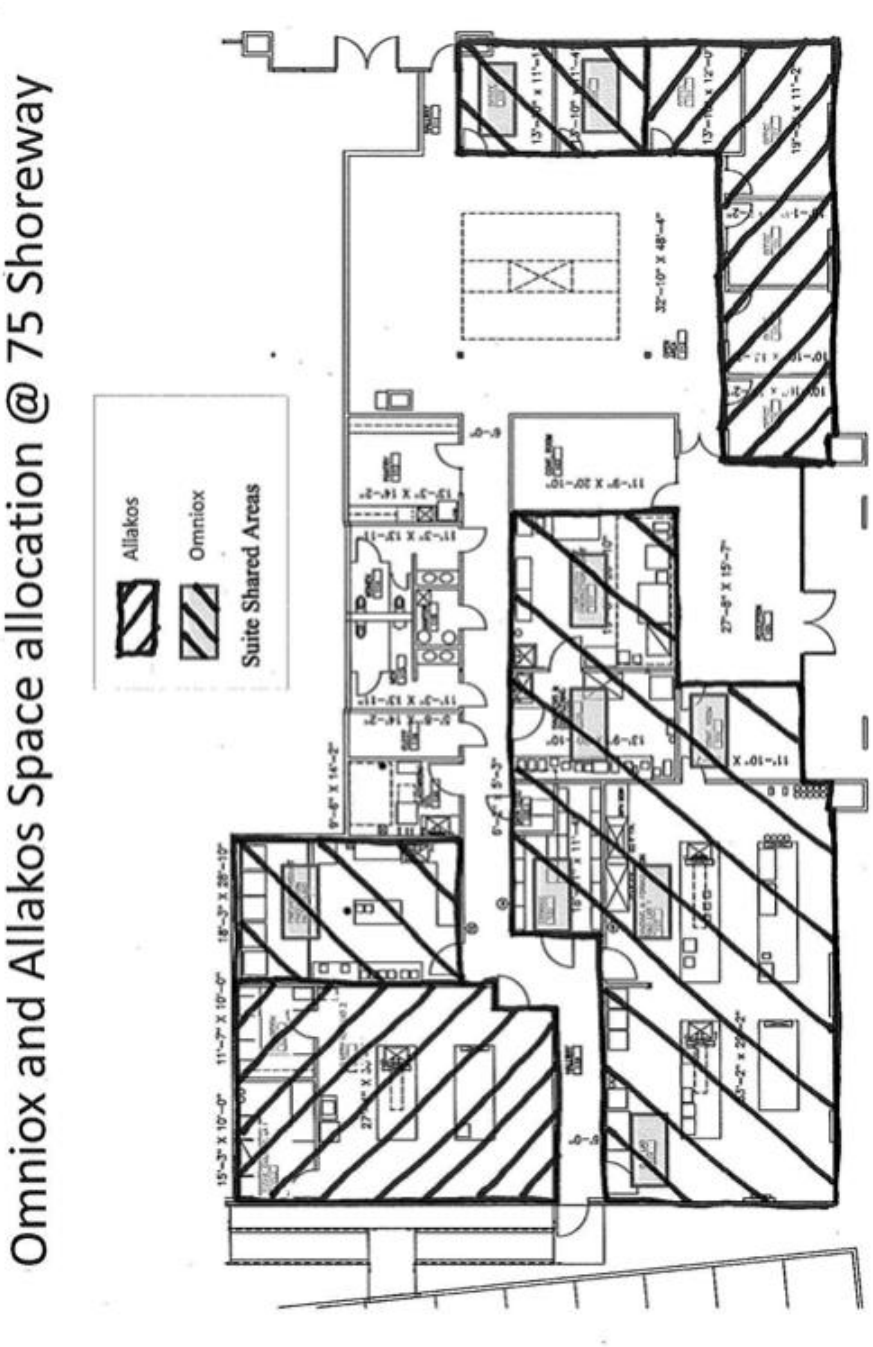
EXHIBIT F TO LEASE

TENANT'S PERSONAL PROPERTY

None.

EXHIBIT G TO LEASE

SHARED SUITE AREAS



FIRST AMENDMENT TO LEASE AGREEMENT

THIS FIRST AMENDMENT TO LEASE AGREEMENT (this "**First Amendment**") is made as of August 14, 2015, by and between **ARE-SAN FRANCISCO NO. 29, LLC**, a Delaware limited liability company ("**Landlord**"), and **ALLAKOS, INC**., a Delaware corporation ("**Tenant**").

RECITALS

A. Landlord and Tenant are now parties to that certain Lease Agreement dated as of May 1, 2013 (the "**Lease**"). Pursuant to the Lease, Tenant leases from Landlord certain premises consisting of approximately 3,380 rentable square feet ("**Original Premises**") in a building located at 75 Shoreway Drive, San Carlos, California. The Original Premises are more particularly described in the Lease. Capitalized terms used herein without definition shall have the meanings defined for such terms in the Lease.

B. The Term of the Lease is scheduled to expire on June 30, 2016.

C. As of the date of this First Amendment, the Expansion Premises (as defined below), which is not demised from the Original Premises, is leased by Omniox (as defined in the Lease) pursuant to the Omniox Lease (as defined in the Lease).

D. Omniox is entering into an amendment with Landlord to the Omniox Lease pursuant to which Omniox will surrender the Expansion Premises and will lease an alternate premises in the Building.

E. Landlord and Tenant desire, subject to the terms and conditions set forth below, to amend the Lease to, among other things, (i) expand the size of the Original Premises by adding the balance of that portion of the Project commonly known as Suite A, containing approximately 6,762 rentable square feet, as shown on **Exhibit A** attached to this First Amendment (the "**Expansion Premises**"), and (ii) provide for the extension of the Term through June 30, 2019.

NOW, THEREFORE, in consideration of the foregoing Recitals, which are incorporated herein by this reference, the mutual promises and conditions contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree as follows:

1. **Expansion Premises**. In addition to the Original Premises, commencing on the Expansion Premises Commencement Date, Landlord leases to Tenant, and Tenant leases from Landlord, the Expansion Premises.

2. **Delivery**. Landlord shall deliver the Expansion Premises to Tenant in vacant, broom clean condition and otherwise in substantially the same condition in which the Expansion Premises are in as of the date of this First Amendment excluding any personal property of Omniox (except to the extent that Tenant or any Tenant Party is responsible for any changes in such condition of the Expansion Premises) ("**Delivery**" or "**Deliver**") on or before the Target Expansion Premises Commencement Date. The "**Target Expansion Premises Commencement Date**" shall be November 1, 2015. If Landlord fails to timely Deliver the Expansion Premises, Landlord shall not be liable to Tenant for any loss or damage resulting therefrom, and this First Amendment shall not be void or voidable except as provided herein. If Landlord does not Deliver the Expansion Premises within 90 days of the Target Expansion Premises Commencement Date for any reason other than Force Majeure delays, then the Lease with respect to the Expansion Premises only may be terminated by Tenant by written notice to Landlord, and if so terminated by Tenant: (a) the additional Security Deposit delivered pursuant to Section 7 of this First Amendment, or any balance thereof (i.e., after deducting therefrom all amounts to which Landlord is entitled under the provisions of the Lease), shall be returned to Tenant, and (b) neither Landlord nor

Tenant shall have any further rights, duties or obligations under this First Amendment with respect to the Expansion Premises. If Tenant does not elect to terminate the Lease with respect to the Expansion Premises only within 5 business days of the lapse of such 90 day period (as extended for Force Majeure delays), such right to terminate the Lease with respect to the Expansion Premises only shall be waived and this First Amendment shall remain in full force and effect. For the avoidance of doubt, notwithstanding anything to the contrary contained herein, if Tenant terminates the Lease with respect to the Expansion Premises pursuant to this paragraph, then this First Amendment shall terminate except for Sections 4 and 5 as they relate to the Original Premises and Section 8, which shall remain in full force and effect with respect to the Original Premises only following such termination of the Lease with respect to the Expansion Premises.

The "**Expansion Premises Commencement Date**" shall be the date Landlord Delivers the Expansion Premises to Tenant. Upon the request of Landlord, Tenant shall execute and deliver a written acknowledgment of the Expansion Premises Commencement Date and the expiration date of the Lease in substantially the form of the "Acknowledgement of Commencement Date" attached to the Lease as **Exhibit D**; provided, however, Tenant's failure to execute and deliver such acknowledgment shall not affect Landlord's rights hereunder.

Pursuant to the Omniox Lease, Landlord is performing certain Landlord's First Amendment Work (as defined in the Omniox Lease) to the Substitute Premises (as defined in Section 11 below). Tenant acknowledges that Landlord shall require access to portions of the Premises (the Original Premises and the Expansion Premises) after the date of this First Amendment in order to complete the Landlord's First Amendment Work. Landlord and its contractors and agents shall have the right to enter the Premises after the date of this First Amendment in order to complete certain portions of the Landlord's First Amendment Work upon reasonable notice to Tenant and Tenant shall reasonably cooperate with Landlord in connection with the same. Tenant acknowledges that Landlord's completion of Landlord's First Amendment Work may adversely affect Tenant's use and occupancy of the Premises. Tenant waives all claims against Landlord for rent abatement in connection with Landlord's First Amendment Work in accordance with this paragraph. Landlord shall cause the Landlord's First Amendment Work to be performed in a good and workmanlike manner, in accordance with Legal Requirements and shall use reasonable efforts not to unreasonably interfere with Tenant's use of the Premises.

For the period of 60 consecutive days after the Expansion Premises Commencement Date, Landlord shall, at its sole cost and expense (which shall not constitute an Operating Expense), be responsible for any repairs that are required to be made to the Building Systems serving the Expansion Premises only, unless Tenant or any Tenant Party was responsible for the cause of such repair, in which case Tenant shall pay the cost.

Except as set forth in this First Amendment: (i) Tenant shall accept the Expansion Premises in their "as-is" condition as of the Expansion Premises Commencement Date, subject to all applicable Legal Requirements; (ii) Landlord shall have no obligation for any defects in the Expansion Premises; and (iii) Tenant's taking possession of the Expansion Premises shall be conclusive evidence that Tenant accepts the Expansion Premises and that the Expansion Premises were in good condition at the time possession was taken.

Except as set forth in this First Amendment, Tenant agrees and acknowledges that neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the condition of all or any portion of the Expansion Premises, and/or the suitability of the Expansion Premises for the conduct of Tenant's business, and Tenant waives any implied warranty that the Expansion Premises are suitable for the Permitted Use.

3. **Definition of Premises and Rentable Area of Premises**. Commencing on the Expansion Premises Commencement Date, the defined terms "**Premises**" and "**Rentable Area of Premises**" on Page 1 of the Lease shall be deleted in their entirety and replaced with the following:

"**Premises**: That portion the Project containing approximately 10,142 rentable square feet, consisting of (i) that portion of Suite A, containing approximately 3,380 rentable square feet (the "**Original Premises**"), and (ii) that portion of Suite A, containing approximately 6,762 rentable square feet ("**Expansion Premises**"), all as determined by Landlord, as shown on **Exhibit A**.

"**Rentable Area of Premises**: 10,142 sq. ft."

As of the Expansion Premises Commencement Date, **Exhibit A** to the Lease shall be deleted in its entirety and replaced with **Exhibit A** attached to this First Amendment.

4. **Base Term**. Commencing on the Expansion Premises Commencement Date, the defined term "**Base Term**" on page 1 of the Lease is deleted in its entirety and replaced with the following:

"**Base Term**: Commencing (i) with respect to the Original Premises on the Commencement Date, and (ii) with respect to the Expansion Premises on the Expansion Premises Commencement Date, and ending with respect to the entire Premises on June 30, 2019."

5. **Base Rent**. Tenant shall continue paying Base Rent with respect to the Original Premises as provided for in the Lease through June 30, 2016. Commencing on the Expansion Premises Commencement Date, Tenant shall pay Base Rent for the Expansion Premises at the same Base Rent per rentable square foot that Tenant is then paying for the Original Premises. Commencing on July 1, 2016, Tenant shall commence paying Base Rent with respect to the entire Premises (the Original Premises and the Expansion Premises) in the amount of $3.25 per rentable square foot of the entire Premises per month. Base Rent for the Premises shall be increased on July 1, 2017, and on each subsequent July 1st during the Base Term (each, an "**Premises Adjustment Date**") by multiplying the Base Rent payable with respect to the Premises immediately before such Premises Adjustment Date by the Rent Adjustment Percentage and adding the resulting amount to the Base Rent payable with respect to the Premises immediately before such Premises Adjustment Date.

6. **Operating Expenses**.

a. Commencing on the Expansion Premises Commencement Date, the defined terms "Tenant's Share of Operating Expenses of Building" and "Tenant's Share of Operating Expenses of Project" on page 1 of the Lease is deleted in its entirety and replaced with the following:

"**Tenant's Share of Operating Expenses of Building**: 27.15%"

"**Tenant's Share of Operating Expenses of Project**: 12.25%"

b. Notwithstanding anything to the contrary contained in the original Lease or this First Amendment, commencing on July 1, 2016, Tenant's Share of each earthquake deductible or occurrence of uninsured earthquake damage affecting to Premises shall be equal to $4.50 per rentable square foot of the Premises with respect to which Tenant is then obligated to pay Base Rent under the Lease (the "**Earthquake Cap**"). On each Original Premises Adjustment Date, the Earthquake Cap shall be reduced by $1.50 per rentable square foot of the Premises with respect to which Tenant is then obligated to pay Base Rent under the Lease. Following earthquake damage to the Project, Tenant shall pay Tenant's Share of any such deductible or uninsured damage in equal monthly installments (not to exceed the Earthquake Cap) amortized over the

remaining balance of the Base Term of the Lease. For the avoidance of doubt, the Earthquake Cap for the period commencing on the Expansion Premises Commencement Date through June 30, 2016, shall not exceed $1.50 per rentable square foot of the Premises with respect to which Tenant is then obligated to pay Base Rent under the Lease.

c. As of the Expansion Premises Commencement Date, the final paragraph of Section 5 of the Lease is hereby deleted and replaced with the following:

"'**Tenant's Share**" shall be the percentage set forth on the first page of this Lease as Tenant's Share as reasonably adjusted by Landlord for changes in the physical size of the Premises or the Project occurring thereafter. If Landlord has a reasonable basis for doing so, Landlord may equitably increase Tenant's Share for any item of expense or cost reimbursable by Tenant that relates to a repair, replacement, or service that benefits only the Premises or only a portion of the Project that includes the Premises or that varies with occupancy or use. Base Rent, Tenant's Share of Operating Expenses and all other amounts payable by Tenant to Landlord hereunder are collectively referred to herein as "**Rent**."'

7. **Security Deposit**. As of the date of this First Amendment, the definition of "**Security Deposit**" on the first page of the Lease is deleted in its entirety and replaced with the following:

"**Security Deposit**: $26,876.30"

Landlord currently holds a Security Deposit in the amount of $8,450.00 in the form of cash under the Lease. Concurrent with Tenant's delivery of an executed original of this First Amendment to Landlord, Tenant shall deliver to Landlord, an additional cash Security Deposit in the amount of $18,426.30.

8. **Extension Right**. Section 39 of the Lease is hereby deleted and replaced in its entirety with the following:

"39. "**Right to Extend Term**. Tenant shall have the right to extend the Term of the Lease upon the following terms and conditions:

(a) **Extension Right**. Tenant shall have 2 rights (each, an "**Extension Right**") to extend the term of this Lease for 1 year each (each, an "**Extension Term**") on the same terms and conditions as this Lease (other than with respect to Base Rent) by giving Landlord written notice of its election to exercise the Extension Right at least 9 months prior, and no earlier than 12 months prior, to the expiration of the Base Term of the Lease or the prior Extension Term.

Upon the commencement of each Extension Term, Base Rent shall be payable at the Market Rate (as defined below). As used herein, "**Market Rate**" shall mean the rate (including any adjustments during the Term) that institutional landlords of comparable buildings have accepted in current transactions from non-equity (i.e., not being offered equity in the buildings) and nonaffiliated tenants of similar financial strength for space of comparable size, quality (including all tenant improvements, Alterations and other improvements) and floor height in Class A laboratory/office buildings in the San Carlos area for a comparable term, with the determination of the Market Rate to take into account all relevant factors, including tenant inducements, percentage of laboratory and office space, views, project amenities, parking costs, leasing commissions, allowances or concessions, if any, and whether or not such concessions are being offered to Tenant during such Extension Term.

If, on or before the date which is 210 days prior to the expiration of the Base Term of this Lease or the prior Extension Term, Tenant has not agreed with Landlord's determination of the Market Rate during the applicable Extension Term after negotiating in good faith, Tenant shall be deemed to have elected arbitration as described in Section 39(b). Tenant acknowledges and agrees that, if Tenant has elected to exercise an Extension Right by delivering notice to Landlord as required in this Section 39(a) Tenant shall have no right thereafter to rescind or elect not to extend the term of the Lease for such Extension Term.

Notwithstanding anything to the contrary contained in the original Lease or this First Amendment, commencing on the commencement date of each Extension Term, Tenant's Share of each earthquake deductible or occurrence of uninsured earthquake damage affecting to Premises shall not exceed $1.50 per rentable square foot of the Premises with respect to which Tenant is then obligated to pay Base Rent under this Lease during such Extension Term (the "**Extension Cap**"). Following earthquake damage to the Project, Tenant shall pay Tenant's Share of any such deductible or uninsured damage in equal monthly installments (not to exceed the Extension Cap) amortized over the remaining balance of the Extension Term.

(b) **Arbitration**.

(i) Within 10 days of Tenant's notice to Landlord of its election (or deemed election) to arbitrate Market Rate, each party shall deliver to the other a proposal containing the Market Rate that the submitting party believes to be correct ("**Extension Proposal**"). If either party fails to timely submit an Extension Proposal, the other party's submitted proposal shall determine the Base Rent for the Extension Term. If both parties submit Extension Proposals, then Landlord and Tenant shall meet within 7 days after delivery of the last Extension Proposal and make a good faith attempt to mutually appoint a single Arbitrator (and defined below) to determine the Market Rate. If Landlord and Tenant are unable to agree upon a single Arbitrator, then each shall, by written notice delivered to the other within 10 days after the meeting, select an Arbitrator. If either party fails to timely give notice of its selection for an Arbitrator, the other party's submitted proposal shall determine the Base Rent for the Extension Term. The 2 Arbitrators so appointed shall, within 5 business days after their appointment, appoint a third Arbitrator. If the 2 Arbitrators so selected cannot agree on the selection of the third Arbitrator within the time above specified, then either party, on behalf of both parties, may request such appointment of such third Arbitrator by application to any state court of general jurisdiction in the jurisdiction in which the Premises are located, upon 10 days prior written notice to the other party of such intent.

(ii) The decision of the Arbitrator(s) shall be made within 30 days after the appointment of a single Arbitrator or the third Arbitrator, as applicable. The decision of the single Arbitrator shall be final and binding upon the parties. The average of the two closest Arbitrators in a three Arbitrator panel shall be final and binding upon the parties. Each party shall pay the fees and expenses of the Arbitrator appointed by or on behalf of such party and the fees and expenses of the third Arbitrator shall be borne equally by both parties. If the Market Rate is not determined by the first day of the Extension Term, then Tenant shall pay Landlord Base Rent in an amount equal to the Base Rent in effect immediately prior to the Extension Term and increased by the Rent Adjustment Percentage until such determination is made. After the determination of the Market Rate, the parties shall make any necessary adjustments to such payments made by Tenant. Landlord and Tenant shall then execute an amendment recognizing the Market Rate for the Extension Term.

(iii) An "**Arbitrator**" shall be any person appointed by or on behalf of either party or appointed pursuant to the provisions hereof and: (i) shall be (A) a member of the American Institute of Real Estate Appraisers with not less than 10 years of experience in the appraisal of improved office and high tech industrial real estate in the greater San Francisco peninsula area, or (B) a licensed commercial real estate broker with not less than 15 years experience representing landlords and/or tenants in the leasing of high tech or life sciences space in the greater San Francisco peninsula area, (ii) devoting substantially all of their time to professional appraisal or brokerage work, as applicable, at the time of appointment and (iii) be in all respects impartial and disinterested.

(c) **Rights Personal**. The Extension Rights are personal to Tenant and are not assignable without Landlord's **consent**, which may be granted or withheld in Landlord's sole discretion separate and apart from any consent by Landlord to an assignment of Tenant's interest in the Lease, except that they may be assigned in connection with any Permitted Assignment of this Lease.

(d) **Exceptions**. Notwithstanding anything set forth above to the contrary, the Extension Rights shall, at Landlord's option, not be in effect and Tenant may not exercise any of the Extension Rights:

(i) during any period of time that Tenant is in Default under any provision of this Lease; or

(ii) if Tenant has been in Default under any provision of this Lease 3 or more times, whether or not the Defaults are cured, during the 12 month period immediately prior to the date that Tenant intends to exercise such Extension Right, whether or not the Defaults are cured.

(e) **No Extensions**. The period of time within which the Extension Rights may be exercised shall not be extended or enlarged by reason of Tenant's inability to exercise such Extension Rights.

(f) **Termination**. The Extension Rights shall, at Landlord's option terminate and be of no further force or effect even after Tenant's due and timely exercise of such Extension Rights, if, after such exercise, but prior to the commencement date of the applicable Extension Term, (i) Tenant fails to timely cure any default by Tenant under this Lease; or (ii) Tenant has Defaulted 3 or more times during the period from the date of the exercise of an Extension Right to the date of the commencement of the applicable Extension Term, whether or not such Defaults are cured."

9. **Omniox Lease**. As of the Expansion Premises Commencement Date, the 4th full paragraph of Section 2 of the Lease is hereby deleted in its entirety and replaced with the following:

"Omniox, Inc., a Delaware corporation ("**Omniox**"), is the tenant under that certain Lease Agreement between Landlord and Omniox dated May 1, 2013 (as same has been and may be amended in the future, "**Omniox Lease**"), pursuant to which Landlord leases to Omniox and Omniox leases from Landlord approximately 8,081 rentable square feet of space in the Building adjacent to the Premises, as described in the Omniox Lease ("**Omniox Premises**"). Tenant acknowledges that the Premises and the Omniox Premises are not demised and that Omniox may have the physical ability to access the Premises during the Term and Tenant may have the physical ability to access the Omniox Premises during the Term. Tenant further acknowledges and agrees that Landlord has no obligation to construct any improvements to separate the Premises from the Omniox Premises. Tenant shall not enter onto the Omniox Premises without express permission from Omniox and shall not take any action or fail to take any action which would interfere with Omniox's use of the Omniox Premises. Landlord shall have no liability for any Claims suffered by Tenant in connection with any entry by Omniox into the Premises. If the Omniox Lease is terminated at any time during the Term of this Lease, Tenant acknowledges that Landlord may lease the Omniox Premises to any third party acceptable to Landlord, in its sole and absolute discretion ("**Third Party Tenant**"). Tenant further acknowledges and agrees that (a) Landlord has no obligation (but Landlord may, in its sole and absolute discretion, elect) to construct any improvements to separate the Premises from the Omniox Premises in connection with its lease of the Omniox Premises to a Third Party Tenant, and (b) such Third Party Tenant will have the physical ability to access the Premises during the Term. If Landlord leases the Omniox Premises to a Third Party Tenant, Tenant shall not enter onto the Omniox Premises without express permission from the Third Party Tenant and shall not take any action or fail to take any action which would interfere with the Third Party Tenant's use of the Omniox Premises. Landlord shall have no liability for any Claims suffered by Tenant in connection with any entry by any Third Party Tenant into the Premises."

10. **Shared Suite Area**.

a. As of the Expansion Premises Commencement Date Section 40 of the Lease and **Exhibit G** to the Lease are hereby deleted in their entirety and are null and void and of no further force or effect.

b. Notwithstanding anything to the contrary contained in the Lease, as of the Expansion Premises Commencement Date, all references in the Lease to the "Shared Suite Area" including, without limitation, the references contained in Section 11 and Section 13 are hereby deleted in their entirety.

11. **Condition Precedent**. Notwithstanding anything to the contrary contained in this First Amendment, Tenant and Landlord acknowledge and agree that the effectiveness of this First Amendment shall be subject to the following condition precedent ("**Condition Precedent**") having been satisfied: Landlord and Omniox shall have entered into a lease amendment to the Omniox Lease on or before August 14, 2015, pursuant to which Omniox agrees to surrender the Expansion Premises and lease an alternate premises in the Building from Landlord ("**Substitute Premises**"), which lease amendment shall be on terms and conditions acceptable to Landlord, in Landlord's sole and absolute discretion. (For the avoidance of any doubt, the Substitute Premises referred to in the immediately preceding sentence is the same "Omniox Premises" referred to in Section 2 of the Lease (as amended pursuant to Section 9 above)). In the event that the Condition Precedent is not satisfied, Landlord shall have the right to terminate this First Amendment upon delivery of written notice to Tenant. Landlord shall have no liability whatsoever to Tenant relating to or arising from Landlord's inability or failure to cause the Condition Precedent to be satisfied.

12. **Disclosure**. For purposes of Section 1938 of the California Civil Code, as of the date of this First Amendment, Tenant acknowledges having been advised by Landlord that the Project has not been inspected by a certified access specialist.

13. **Brokers**. Landlord and Tenant each represents and warrants that it has not dealt with any broker, agent or other person (collectively, "**Broker**") in connection with the transaction reflected in this First Amendment and that no Broker brought about this transaction, other than Jones Lang LaSalle. Landlord and Tenant each hereby agree to indemnify and hold the other harmless from and against any claims by any Broker, other than Jones Lang LaSalle claiming a commission or other form of compensation by virtue of having dealt with Tenant or Landlord, as applicable, with regard to this First Amendment.

14. **Miscellaneous**.

a. This First Amendment is the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior and contemporaneous oral and written agreements and discussions. This First Amendment may be amended only by an agreement in writing, signed by the parties hereto.

b. This First Amendment is binding upon and shall inure to the benefit of the parties hereto, and their respective successors and assigns.

c. This First Amendment may be executed in any number of counterparts, each of which shall be deemed an original, but all of which when taken together shall constitute one and the same instrument. The signature page of any counterpart may be detached therefrom without impairing the legal effect of the signature(s) thereon provided such signature page is attached to any other counterpart identical thereto except having additional signature pages executed by other parties to this First Amendment attached thereto.

d. Except as amended and/or modified by this First Amendment, the Lease is hereby ratified and confirmed and all other terms of the Lease shall remain in full force and effect, unaltered and unchanged by this First Amendment. In the event of any conflict between the provisions of this First Amendment and the provisions of the Lease, the provisions of this First Amendment shall prevail. Whether or not specifically amended by this First Amendment, all of the terms and provisions of the Lease are hereby amended to the extent necessary to give effect to the purpose and intent of this First Amendment.

e. As of the date of this First Amendment, there is no existing Mortgage encumbering the Project.

[Signatures are on the next page.]

IN WITNESS WHEREOF, the parties hereto have executed this First Amendment as of the day and year first above written.

TENANT:

ALLAKOS, INC.,
a Delaware corporation

By: /s/ Chris Bebbington
Its: CEO

LANDLORD:

ARE-SAN FRANCISCO NO. 29, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P.,
a Delaware limited partnership,
managing member

By: ARE-QRS CORP.,
a Maryland corporation,
general partner

By: /s/ Gary Dean
Its: Senior Vice President
RE Legal Affairs

Exhibit A

The Premises