ZIOPHARM ONCOLOGY INC

FORM 10-K
(Annual Report)

Filed 02/24/16 for the Period Ending 12/31/15

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CIK	0001107421
Symbol	ZIOP
SIC Code	8093 - Specialty Outpatient Facilities, Not Elsewhere Classified
Industry	Biotechnology & Drugs
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

FORM 10-K

☒ **ANNUAL REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2015

OR

☐ **TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission File Number 001-33038

ZIOPHARM Oncology, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	**84-1475642**
(State or Other Jurisdiction of Incorporation or Organization)	**(IRS Employer Identification No.)**
One First Avenue, Parris Building 34, Navy Yard Plaza Boston, Massachusetts	**02129**
(Address of Principal Executive Offices)	**(Zip Code)**

(617) 259-1970
(Registrant's Telephone Number, Including Area Code)

Securities registered pursuant to Section 12(b) of the Act:

Common Stock (par value $0.001 per share)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the past 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See definition of "large accelerated filer," "accelerate filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large Accelerated Filer	☒	Accelerated Filer	☐
Non-Accelerated Filer	☐	Smaller Reporting Company	☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of the registrant's common stock held by non-affiliates was $1,293,080,196 as of June 30, 2015 (the last business day of the registrant's most recently completed second fiscal quarter), based on a total of 107,756,683 shares of common stock held by non-affiliates and a closing price of $12.00 as reported on the NASDAQ Capital Market on June 30, 2015.

As of February 10, 2016, there were 131,718,579 shares of the registrant's common stock, $0.001 par value per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE:

Portions of the definitive proxy statement for the registrant's 2016 annual meeting of stockholders, which is to be filed within 120 days after the end of the fiscal year ended December 31, 2015, are incorporated by reference into Part III of this Form 10-K, to the extent described in Part III.

ZIOPHARM Oncology, Inc.
FORM 10-K
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2015

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Special Note Regarding Forward-Looking Statements

This report contains forward-looking statements that are based on our current beliefs and expectations. These forward-looking statements may be accompanied by such words as “anticipate,” “believe,” “estimate,” “expect,” “forecast,” “intend,” “may,” “plan,” “project,” “target,” “will” and other words and terms of similar meaning. Reference is made in particular to forward-looking statements regarding:

- our ability to finance our operations and business initiatives and obtain funding for such activities;
- the sufficiency of our cash, investments and our expected uses of cash;
- the costs and timing of the development and commercialization of our products;
- additional planned regulatory filings for the approval and commercialization of our immuno-oncology and synthetic immuno-oncology product candidates;
- whether any of our other therapeutic discovery and development efforts will advance further in pre-clinical research or in the clinical trial process and whether and when, if at all, our product candidates will receive final approval from the U.S. Food and Drug Administration or equivalent foreign regulatory agencies and for which indications;
- whether any other therapeutic products we develop will be successfully marketed if approved;
- our ability to achieve the results contemplated by our collaboration agreements;
- competition from other pharmaceutical and biotechnology companies;
- the development of, and our ability to take advantage of, the market for our therapeutic products;
- the anticipated amount, timing and accounting of deferred revenues, milestone and other payments under licensing, collaboration or acquisition agreements, research and development costs and other expenses;
- the strength and enforceability of our intellectual property rights;
- our assessment of the potential impact on our future revenues of healthcare reform legislation in the United States;
- the timing and impact of measures worldwide designed to reduce healthcare costs;
- the uncertainty of economic conditions in certain countries in Europe and Asia; and
- general economic conditions.

These forward-looking statements involve risks and uncertainties, including those that are described in the “ *Risk Factors* ” section of this report and elsewhere within this report that could cause actual results to differ materially from those reflected in such statements. You should not place undue reliance on these statements. Forward-looking statements speak only as of the date of this report. We do not undertake any obligation to publicly update any forward-looking statements.

PART I

Item 1. Business

General

ZIOPHARM Oncology, Inc. is a biopharmaceutical company seeking to acquire, develop and commercialize, on its own or with partners, a diverse portfolio of cancer therapies that address unmet medical needs through synthetic immuno-oncology. Pursuant to an exclusive channel partner agreement (or Channel Agreement) with Intrexon Corporation, or Intrexon, we obtained certain exclusive rights to Intrexon's synthetic immuno-oncology platform for use in the field of oncology, which included a clinical stage product candidate, Ad-RTS-IL-12 used with the oral activator veledimex. The synthetic immuno-oncology platform is an industrialized engineering approach for molecular and cell biology and gene control. It employs an inducible gene-delivery system that enables controlled *in vivo* expression of genes that produce therapeutic proteins to treat cancer. Ad-RTS-IL-12 + veledimex uses this gene delivery system to produce interleukin-12, or IL-12, a potent, naturally occurring anti-cancer protein.

We have completed two Phase 2 studies evaluating Ad-RTS-IL-12 + veledimex, the first for the treatment of metastatic melanoma, and the second for the treatment of metastatic breast cancer. We have announced the initiation of a single-center Phase 1b/2 study following standard chemotherapy for the treatment of patients with locally advanced or metastatic breast cancer and the initiation of a multi-center Phase 1 study in patients with recurrent or progressive glioblastoma (GBM) or Grade III malignant glioma, a form of brain cancer. Both studies are actively enrolling patients. Early clinical data from the GBM trial was presented at the Society for Neuro-Oncology meeting in November 2015, and on February 24, 2016, we announced the successful completion of the initial dosing cohort and that the first patient has been dosed in the next succeeding cohort of the GBM study. The Company also presented information about the ongoing breast cancer trial at the San Antonio Breast Cancer Symposium in December 2015. It is expected there will be an update of the GBM and breast cancer trials at the 2016 ASCO meeting. In addition to Ad-RTS-IL-12 + veledimex as monotherapy, the Company has undertaken pre-clinical studies revealing that this viral-based immunotherapy can be combined with immune checkpoint inhibitors (iCPI) to improve the anti-tumor effect for GBM. These pre-clinical data have been submitted for dissemination at the American Society of Cell and Gene Therapy (ASGCT) in May 2016. These data support the first-in-human application of combining Ad-RTS-IL-12 + veledimex with an iCPI for investigational treatment of GBM which we expect to open in 2016.

In addition to our synthetic immuno-oncology programs, pursuant to our Channel Agreement, we, together with Intrexon, obtained an exclusive, worldwide license to certain immuno-oncology technologies owned and licensed by The University of Texas MD Anderson Cancer Center, or MD Anderson, including technologies relating to novel chimeric antigen receptors, or CARs, natural killer, or NK cells and T cell receptors, or TCRs. We plan to develop genetically modified T cells and other immune cells that will target and kill cancer cells. Control systems are also being developed using Intrexon's RheoSwitch Therapeutic System ® (RTS ®) for receptor expression as well as for the conditional ablation of genetically modified cells using a kill switch. We plan to leverage the synergy between the platforms to accelerate a synthetic immuno-oncology pipeline and programs for the development of allogeneic CAR-T and natural killer (NK) cells that can be used as off-the-shelf (OTS) therapies. During 2015, the Company was in the clinic in collaboration with MD Anderson with three CAR-T therapies all targeting CD19. One of these T cell trials, using second generation technology, will continue in 2016. The Company expects to enter the clinic with an additional CAR-T therapy for myeloid malignancies in 2016. Together with Intrexon, we have research programs evaluating additional CAR targets and CARs co-expressed with cytokines. In addition to developing T cells, the Company expects to enter the clinic in 2016 infusing OTS primary NK cells for investigational therapy of acute myelogenous leukemia (AML). The Company has additional interest in OTS products and is conducting a research program for the development of an allogenic CAR-T therapy in 2016. T cell specificity can be redirected not only through CARs, but also T cell receptors (TCRs) and plans to initiate programs investigating T cells genetically modified to express TCR with preclinical studies planned for 2016. We plan to continue to combine Intrexon's technology suite with our capabilities to

translate science to the patient, and to identify and develop additional products to stimulate or inhibit key pathways, including those used by the body's immune system, to treat cancer.

On March 27, 2015, we entered into a global collaboration with Intrexon focused exclusively on chimeric antigen receptor T cell, or CAR-T, products with Ares Trading, or Ares, a biopharmaceutical division of Merck KGaA. Intrexon will share the economic provisions of this collaboration equally with us, including an upfront payment of $115.0 million received in July 2015, milestones and royalties. Under the collaboration Ares already selected two CAR-T targets for which we will perform certain research activities that will, in part, be funded by Ares. Pursuant to the terms of the Exclusive Channel Partner Amendment, or ECP Amendment, we will be responsible for any additional research and development expenditures. Once these candidates reach investigational new drug stage, the programs will be transferred to Ares for clinical development and commercialization. We, together with Intrexon will also independently conduct research and development on other CAR-T candidates, with Ares Trading having the opportunity during clinical development to opt-in to these candidates for additional payments.

On September 28, 2015, the Company entered into a new Exclusive Channel Collaboration with Intrexon to develop treatments for graft-versus-host disease (GvHD), a major complication of allogeneic hematopoietic stem-cell transplantation, or HSCT, which significantly impairs the quality of life and survival of many recipients. The collaboration will focus on addressing the underlying pathologies of GvHD through engineered cell platforms to express and deliver interleukin-2, or IL-2, a cytokine critical for modulation of the immune system. The Company believes that the combined expertise and knowledge gained from our research programs with Intrexon in adoptive T cell therapies and cytokine modulation for the treatment of cancer positions us well to develop and implement therapeutic approaches addressing an area of high unmet medical need for patients with GvHD. Through the GvHD Agreement, we, together with Intrexon, plan to pursue engineered cell therapy strategies, used either separately or in combination, for targeted treatment of GvHD. The first approach is expected to utilize the infusion of regulatory T cells, or Tregs, conditionally expressing IL-2 utilizing the RheoSwitch platform. The second approach is expected to utilize the deployment of orally-delivered microbe-based ActoBiotics ® therapeutics expressing IL-2 to modulate immune function. Allogeneic HSCT is used for the treatment of various diseases including hematological malignancies, immunological deficiencies as well as non-malignant conditions. Approximately 40 to 60% of HSCT recipients develop GvHD, either acute or chronic, when immune (graft) cells in a transplant patient recognize their engrafted host as foreign and attack the patient's (host) cells. Immunosuppressive agents and systemic steroids routinely used to treat GvHD have limited efficacy and toxicity, defining the need for safer, more effective therapies. Human studies have shown that administration of low-dose subcutaneous IL-2 in patients with steroid-refractory GvHD acts via Tregs to ameliorate its manifestations.

Enabling Technology

Synthetic immuno-oncology entails the application of engineering principles to biological systems for the purpose of designing and constructing new biological systems or redesigning/modifying existing biological systems. Biological systems are governed by DNA, the building block of gene programs, which control cellular processes by coding for the production of proteins and other molecules that have a functional purpose and by regulating the activities of these molecules. This regulation occurs via complex biochemical and cellular reactions working through intricate cell signaling pathways, and control over these molecules modifies the output of biological systems. Synthetic immuno-oncology has been enabled by the application of information technology and advanced statistical analysis, also known as bioinformatics, to genetic engineering, as well as by improvements in DNA synthesis. Synthetic immuno-oncology aims to engineer gene-based programs or codes to modify cellular function to achieve a desired biological outcome. Its application is intended to allow more precise control of drug concentration and dose, thereby improving the therapeutic index associated with the resulting drug. A further embodiment of this technology is the ability to eliminate genetically modified immune cells after infusion.

On January 6, 2011, we entered into the Channel Agreement, to develop and commercialize novel DNA-based therapeutics in the field of cancer treatment by combining Intrexon's synthetic immuno-oncology platform with our capabilities to translate science to the patient. As a result, our DNA synthetic immuno-oncology platform employs an inducible gene-delivery system that enables regulated and controlled delivery of genes that produce therapeutic proteins to treat cancer. The first example of this regulated controlled delivery is achieved by producing IL-12, a potent, naturally occurring anti-cancer protein, under the control of Intrexon's proprietary biological "switch" to turn on and off (and on and off repeatedly) the therapeutic protein expression at the tumor site. We and Intrexon refer to this "switch" as the RheoSwitch Therapeutic System ® or RTS ® , platform. Our initial drug candidate being developed using the synthetic immuno-oncology platform is Ad-RTS-IL-12 + veledimex.

More detailed descriptions of our clinical development plans for each of these programs are set forth below under the caption " *Product Candidates."*

Immuno-oncology

Immuno-oncology, which typically utilizes a patient's own immune system to treat cancer, is one of the most actively pursued areas of research by biotechnology and pharmaceutical companies today. Cancer cells contain mutated proteins and may overexpress other proteins usually found in the body at low levels. The immune system typically recognizes unusual or aberrant cell protein expression and eliminates these cells in a highly efficient process known as immune surveillance. Central players in immune surveillance are types of white blood cell known as the T cells and NK cells. In healthy individuals, T cells and NK cells can identify and kill infected or abnormal cells, including cancer cells. Cancer cells develop the ability to evade immune surveillance, which is a key factor in their growth, spread, and persistence. In the recent past, there has been substantial scientific progress in countering these evasion mechanisms using immunotherapies, or therapies that activate the immune system.

On January 13, 2015, we, together with Intrexon, entered into a license agreement with MD Anderson, which we refer to as the MD Anderson License. Pursuant to the MD Anderson License, we and Intrexon hold an exclusive, worldwide license to certain technologies owned and licensed by MD Anderson including technologies relating to novel CAR+ T cell therapies arising from the laboratory of Laurence Cooper, M.D., Ph.D., who was then a tenured professor at MD Anderson, as well as either co-exclusive or non-exclusive licenses under certain related technologies.

Combining the non-viral genetic engineering technologies we licensed from MD Anderson together with Intrexon's industrialized approach to gene engineering and cell control, we believe we can rapidly and efficiently reprogram T cells to express a particular CAR or TCR construct that will enable the T cell and/or NK cell to recognize and target cancer cells. CAR+ T cells target cell surface tumor antigens, such as CD19, that exist on cancer cells and that are independent of human leukocyte antigens, or HLAs, and which we refer to as "public" antigens. TCR-expressing T cells target tumor antigens that are dependent on HLAs and which we refer to as "private" antigens and include neo-antigens. NK cells target tumors with loss or differences of HLAs, or tumors with no defined antigens. Most CAR+ T cell and TCR products currently being developed by competitors are autologous, or derived from the patient's own mononuclear white blood cells, and gene engineered with viral technology. As a result, the patient's blood must be harvested, shipped to a manufacturing facility where the isolated mononuclear white blood cells are modified using a retrovirus to express the CAR or TCR, and then shipped back to the hospital and infused into the patient. The process can take several weeks to a month and is very labor intensive and costly. Currently, this complex technique can only be done in sophisticated laboratories. We believe we will be able to manufacture our CAR+ T cells and TCRs using viral and non-viral methods. The latter may result in a reduced cost of manufacturing. We intend to use our gene transfer methods to develop allogeneic treatments that can be used as an OTS treatment. An allogeneic OTS (also referred to as universal donor) treatment would enable a patient to be treated with a CAR-T and/or NK cell product that is created in advance of need from one or more separate healthy donor(s), possibly genetically modified for a tumor type, and

then distributed to multiple points of care. Our non-viral methods, which we believe are customizable, fast and less costly than other approaches, together with our industrialized, scalable engineering approach are expected to enable highly efficient and less costly manufacturing approaches to gene engineered cell-based therapy. In addition, our proprietary RheoSwitch Therapeutic System ® and/or kill switches may give us the ability to control *in vivo* gene expression (on-off-on-off etc.) CAR+ T or TCR cells or NK cells, which we believe could result in significantly lower toxicity compared to other products currently in development.

Cancer Overview

Cancer is a group of diseases characterized by either the runaway growth of cells or the failure of cells to die normally. Often, cancer cells spread to distant parts of the body, where they can form new tumors. Cancer can arise in any organ of the body and, according to the American Cancer Society, strikes slightly less than one of every two American men and a little more than one of every three American women at some point in their lives.

It is reported that there are more than 100 different varieties of cancer. Carcinomas, the most common type of cancer, originate in tissues that cover a surface or line a cavity of the body. Lymphomas are cancers of the lymph system, which is a circulatory system that bathes and cleanses the body's cells. Leukemias involve blood-forming tissues and blood cells. As their name indicates, brain tumors are cancers that begin in the brain, skin cancers, including melanomas, originate in the skin, while soft tissue sarcoma arises in soft tissue. Cancers are considered metastatic if they spread through the blood or lymphatic system to other parts of the body to form secondary tumors.

Cancer is caused by a series of mutations (alterations) in genes that control cells' ability to grow and divide. Some mutations are inherited; others arise from environmental factors such as smoking or exposure to chemicals, radiation, or viruses that damage cells' DNA. The mutations cause cells to divide relentlessly or lose their normal ability to die.

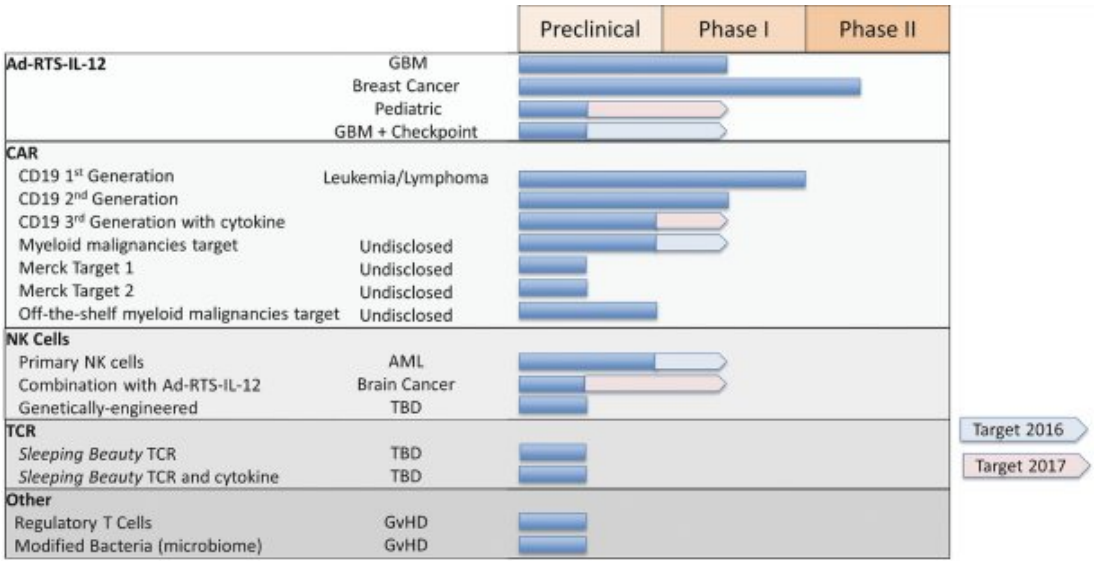
According to the American Cancer Society, it is estimated that about 1,658,370 new cases of cancer are expected to be diagnosed in 2015 and about 589,430 Americans are expected to die from cancer in 2015. The cost of treating cancer is significant. The Agency for Healthcare Research and Quality estimates that the direct medical cost of cancer in 2011 was $88.7 billion.

Cancer Treatments

Major treatments for cancer include surgery, radiotherapy, chemotherapy and immunotherapy. Newer approaches such as anti-angiogenic and targeted therapies are rapidly evolving. Other treatments for cancer may involve supportive care. While there are many experimental treatments under investigation, including DNA and other immunological-based therapies, we believe the prevalence of cancer will remain a significant unmet medical need. Many therapies, including combination approaches, with different mechanisms of action may be needed to overcome tumor escape. In addition to monotherapy treatment in GBM, the Company's approach to cancer treatment includes applying multiple modality and multi-delivery approaches that encompasses viral and non-viral mechanisms, differentiating us from many other companies in the field of adoptive cellular therapy today.

Product Candidates

The following chart identifies our synthetic immuno-oncology product candidates and their current stage of development, each of which are described in more detail below.



Synthetic Immuno-Oncology Programs

Ad-RTS-IL-12 + veledimex

Ad-RTS-IL-12 + veledimex has been evaluated in two Phase 2 studies, the first for the treatment of metastatic melanoma, and the second for the treatment of unresectable recurrent or metastatic breast cancer. We are continuing to evaluate Ad-RTS-IL-12 + veledimex, in brain cancer and breast cancer. Ad-RTS-IL-12 + veledimex, our more advanced product candidate, uses our gene delivery system to produce IL-12, a potent, naturally occurring anti-cancer protein.

More specifically, IL-12 is a potent immunostimulatory cytokine which activates and recruits dendritic cells that facilitate the cross-priming of tumor antigen-specific T cells. We have developed an adenoviral vector, Ad-RTS-IL-12, administered intratumorally under the control of the RheoSwitch Therapeutic System ® (RTS) expression platform. Gene expression and subsequent IL-12 protein production is tightly controlled by the activator ligand veledimex.

GBM and or Grade III malignant glioma are recognized as the most frequent malignant brain tumor in adults and is associated with a particularly dismal prognosis, resulting in a very high unmet medical need. The current standard of care is based on surgical resection to the maximum feasible extent, followed by radiotherapy and concomitant adjuvant temozolomide. This current standard of care is associated with only modest improvements in survival.

It is estimated that there are nearly 3 million women living in the United States with a history of invasive breast cancer, and an additional 226,870 women were diagnosed in 2012 (Siegel et al, 2012). Approximately 50% of women diagnosed with primary breast cancer will eventually relapse and develop metastatic or advanced disease. In addition, around 10% of patients present with metastatic disease at first diagnosis. The 5-year relative survival rate for women diagnosed with localized breast cancer is 98.6%; survival declines to 83.8% for regional stage and to 23.3% for distant stage. In addition to stage, factors that influence survival include tumor grade, hormone receptor status, and human epidermal growth factor receptor 2 (HER2) status.

Ad-RTS-IL-12 + veledimex for malignant glioma

We initiated the Phase 1 study during the second quarter of 2015. On July 23, 2015, the FDA granted orphan drug designation of Ad-RTS-IL-12 + veledimex for the treatment of malignant glioma. Orphan drug designation provides eligibility for a seven-year period of market exclusivity in the United States after product approval, an accelerated review process, accelerated approval where appropriate, grant funding, tax benefits and an exemption from user fees.

Ad-RTS-IL-12 + veledimex for metastatic breast cancer and melanoma

We have completed the Phase 2 monotherapy studies in melanoma and breast cancer using Ad-RTS-IL-12 + veledimex. We presented two poster presentations entitled "Demonstration of systemic antitumor immunity via intratumoral regulated expression of IL-12 in advanced breast cancer and melanoma patients" and "Demonstration of systemic antitumor immunity via intratumoral regulated expression of IL-12 as a gene therapy approach to treatment of cancer" at the CRI-CIMT-EATI-AACR Inaugural International Cancer Immunotherapy Conference, Translating Science into Survival on September 16-19, 2015 in NY, NY .

In June 2015 we began enrolling a multisite gene therapy Phase I trial recruiting patients with recurrent or progressive glioblastoma (GBM) or Grade III malignant glioma. We reported biologic data from this study in our presentation titled "Intratumoral regulated expression of IL-12 as a gene therapy approach to treatment of glioma," at the Society for Neuro-Oncology (SNO) 20th Annual Scientific Meeting, November 19-22, 2015 in San Antonio, TX, and on February 24, 2016, we announced the successful completion of the initial dosing cohort and that the first patient has been dosed in the next succeeding cohort of the GBM study. We plan to report an update on these patients at the annual meeting of the American Society of Clinical Oncology (ASCO) in June 2016. We also plan to report pre-clinical data on combining Ad-RTS-IL-12 + veledimex with iCPI at ASGCT in May 2016.

On April 27, 2015, we announced the initiation of a Phase 1b/2 study of Ad-RTS-hIL-12 + veledimex following standard chemotherapy for the treatment of patients with locally advanced or metastatic breast cancer. The study is being conducted at the Memorial Sloan Kettering Cancer Center in New York and will evaluate improving the patient's response at 12-weeks. A poster presentation of this study titled "Phase 1b/2 study of intratumoral Ad-RTS-hIL-12 + veledimex in patients with chemotherapy-responsive locally advanced or metastatic breast cancer" was presented at the San Antonio Breast Cancer Symposium, in San Antonio, Texas in December 2015.

CAR-T, NK and TCR Cells

We are actively pursuing viral and non-viral genetic engineering technologies and approaches to propagation to develop novel CAR+ T, NK and TCR cells. Combining this technology with Intrexon's industrialized synthetic biologic engineering and clinically tested and validated RTS modules and/or kill switches, represents a differentiated approach to genetically modified T cells and other immune cells, such as NK cells. Employing novel cell engineering techniques and multigenic gene programs, we expect to implement next-generation non-viral and viral adoptive cellular therapies based on designer cytokines, CARs and TCR's targeting both hematologic malignancies and solid tumors.

The platform we, together with Intrexon, exclusively licensed from MD Anderson uses the *Sleeping Beauty,* or SB, non-viral genetic modification system to generate and characterize new CAR-T and TCR designs, which enables a high throughput approach to evaluate the genetically modified immune cells in oncology. In addition, we can rapidly assemble CARs and TCR's to fashion immuno-receptors that differ in specificity and ability to activate T cells. These CAR-T and TCR molecules are evaluated in a "go/no go" system based on measurements of T cell function, phenotype, and genotype. We believe this non-viral gene transfer using the SB system is unique in the field of oncology and may avoid the expense and manufacturing difficulty associated with creating T cells engineered to express CAR and TCR using viral vectors. After electroporation, the transposon/transposase improves the efficiency of integration of donor plasmids used to express CAR and other transgenes in T cells. Propagation of genetically modified T cells on AaPC may provide a competitive advantage over other

methods of modification. The SB system combined with AaPC can selectively propagate and thus retrieve CAR expressing T cells suitable for human application. The time in culture with AaPC may be shortened to manufacture "minimally-manipulated" T cells within days of gene transfer by electroporation. Furthermore, we are exploring technologies that eliminate the need for *in vitro* propagation. We are also exploring the use of lentivirus to genetically reprogram T cells with CAR and TCR to redirect T cell specificity.

The ability to genetically modify immune cells using non-viral and viral-based technologies enables us to express other genes in addition to immunoreceptors (CARs and TCRs) to redirect specificity. For example, we have developed a tethered or membrane-bound form of IL-15 (mbIL-15) which in pre-clinical modeling endows CAR-expressing T cells with an ability to be long-lived. The Company expects to build upon these data to co-express immunoreceptors with cytokines and to leverage its ability to control expression with RTS and/or kill switches. Using this unique set of genetic engineering tools, the company can employ a broad immunotherapy approach against cancer.

CAR-T

Through the MD Anderson License, the Company was able to enter the clinic with three CAR-T therapies in 2015 utilizing the non-viral genetic modification capabilities of the SB system. Two of these trials are with "first generation" technologies and one with "second generation" methodology. The latter will continue enrolling in 2016. The Company expects to enter the clinic with an additional CAR-T therapy for myeloid malignancies in 2016. This will be based on co-expressing a CAR (outside of CD19) with a kill switch to eliminate T cells after administration and using lentivirus to genetically modify the T cells. Pre-clinical data including CAR expression, cytotoxicity and IFN- γ production are encouraging and the Company is preparing for the clinical study. Development of CAR-T therapies for other hematologic and solid tumor malignancies is also underway with preclinical studies planned throughout 2016.

The Company expects to conduct a research program for the development of an allogenic CAR-T therapy and plans to initiate programs investigating T cells genetically modified to express TCR with preclinical studies planned for 2016. The primary factor limiting the current deployment of a universal donor product is the potential for GvHD. GvHD occurs if infused allogeneic T cells regard the recipient's body as foreign. Previous research from Dr. Cooper and colleagues at MD Anderson suggested that "universal" or off the shelf allogeneic T cells generated from one donor could be administered to multiple recipients. This is achieved by genetically editing CAR-expressing T cells to eliminate expression of the endogenous α ß TCR, the receptor most responsible for triggering GvHD, without compromising CAR-dependent effector functions. Dr. Cooper and colleagues at MD Anderson also published research which demonstrated that T cells can be permanently modified to eliminate TCR expression, demonstrating how to *a priori* generate cells from one allogeneic donor for infusion into multiple recipients. These studies represent steps towards our goal of on-demand therapy that can be pre-deployed at multiple sites and infused when needed. The translation of the SB system and AaPC for use in clinical trials has the potential to show how a nimble and cost-effective approach to developing genetically modified T cells can be used to implement clinical trials infusing next-generation T cells with improved therapeutic potential.

NK Cell

In addition to T cells, the company is pursuing NK cell therapies for the treatment of cancer. NK cells have advantages over T cell therapies in that killing is independent of a target antigen. Initially, this OTS NK cell treatment will be tested in AML patients; plans are to enter the clinic in 2016. Additional clinical trials which may employ combinations with other therapies will be considered in the future, e.g. for treatment of brain cancer.

Discovery programs are also underway to explore genetic modification of NK cells for increased tumor killing specificity. We expect to advance these and other exploratory NK cell programs in preclinical studies in 2016.

TCR

Many of these same genetic engineering technologies can also be applied towards targeting intracellular antigens with TCRs. This approach is particularly important for addressing the complexity of solid tumors. SB is ideally suited for targeting intracellular antigens by TCR as it is cost effective, has rapid manufacturing and is customizable for individual patient therapies with the ability to include multiple TCRs in a single therapy. The company is pursuing discovery programs in TCR therapies for known as well as unknown (or "neoantigen") targets. The development of an approach to truly create a personalized therapy for each cancer patient based on his/her neoantigens is a long term goal of the company.

Milestones

We expect the following milestones to occur in 2016:

- Intra-tumoral IL-12 RheoSwitch ® programs:
  - Clinical update at ASCO 2016 for Phase 1 study of GBM
  - Clinical update at a 2016 scientific meeting for Phase 1/2 study in Breast Cancer with standard of care
  - Pre-clinical update at ASGCT 2016 meeting for combining with iCPI
- CAR-T programs:
  - Clinical update for our Phase 1 study of next-generation CD19 CAR in 2016
  - Seek approval for a CAR for myeloid malignancies in the first half of 2016 and initiate the clinical study in the second half of 2016.
  - Initiate CAR+ T cell preclinical studies for other hematological malignancies and solid tumors in 2016
  - Initiate preclinical studies of allogeneic, off-the-shelf T cell studies in 2016
- TCR-T programs
  - Initiate TCR-modified T cell preclinical studies in 2016
- NK cell programs
  - Initiate a Phase 1 study of OTS NK cells for AML in 2016
- GvHD programs
  - Initiate preclinical studies in 2016

We are also evaluating additional potential preclinical candidates and continuing discovery efforts aimed at identifying other potential product candidates under our Channel Agreement with Intrexon. In addition, we may seek to enhance our pipeline in synthetic immuno-oncology through focused strategic transactions, which may include acquisitions, partnerships and in-licensing activities. We are actively seeking to out-license some or all of our remaining small molecule programs to further support our synthetic immuno-oncology efforts.

GvHD Program

We, together with Intrexon, are initiating a research program focused on addressing the underlying pathologies of GvHD through its engineered cell platforms. The exclusive collaboration, or the GvHD Program, will focus on the pursuit of the following engineered cell therapy strategies, used either separately or in combination, for the targeted treatment of GvHD: (i) the infusion of regulatory T cell expressing membrane-bound and/or soluble interleukin-2 and (ii) the deployment of orally delivered, genetically modified *L. lactis* that express interleukin-2

to modulate immune function. We believe these strategies have the potential to broaden the number of patients eligible to receive allogeneic HCST and also increase the number of effective donor/recipient combinations.

Small Molecule Programs

In addition to our synthetic immuno-oncology programs we maintain certain rights to three small molecule programs, palifosfamide, darinaparsin and indibulin, all of which we are no longer directly developing. With respect to palifosfamide, in March 2013, we announced that the pivotal Phase 3 study, PICASSO 3, did not meet its primary endpoint of progression-free survival, and that we would terminate our development program in metastatic soft tissue sarcoma. The overall survival endpoint data from MATISSE, the study of palifosfamide in combination with carboplatin and etoposide chemotherapy versus carboplatin and etoposide alone in chemotherapy naïve patients with metastatic small cell lung cancer, was presented at the annual meeting of the American Society of Clinical Oncology in June 2015. We out-licensed palifosfamide to Predictive Therapeutics, Ltd, a privately-held company, on November 17, 2015. Pursuant to our agreement with Predictive Therapeutics we received an upfront payment of $250 thousand, and we are entitled to receive additional clinical and commercial milestone payments, as well as royalties based on net sales.

With respect to darinaparsin, we have entered into an amended and restated global licensing agreement with Solasia Pharma K.K., or Solasia, on July 31, 2014 granting Solasia an exclusive worldwide license to develop and commercialize darinaparsin, and related organoarsenic molecules, in both intravenous and oral forms in all indications for human use. In exchange, we will be eligible to receive from Solasia development-and sales-based milestones, a royalty on net sales of darinaparsin, once commercialized, and a percentage of any sublicense revenues generated by Solasia. During 2014, we determined to no longer pursue clinical development of indibulin.

Development Plans

As of December 31, 2015, we have approximately $140.7 million of cash and cash equivalents. Given our development plans, we anticipate cash resources will be sufficient to fund our operations into the fourth quarter of 2017. This forecast of cash resources is forward-looking information that involves risks and uncertainties, and the actual amount of our expenses could vary materially and adversely as a result of a number of factors, including the factors discussed in the "Risk Factors" section of this form 10-K and the uncertainties applicable to our forecast for the overall sufficiency of our capital resources. We have based our estimates on assumptions that may prove to be wrong, and our expenses could prove to be significantly higher than we currently anticipate. In particular, pursuant to the MD Anderson License, MD Anderson agreed to transfer to us certain existing research programs described in the MD Anderson License and we, together with Intrexon, entered into a research and development agreement pursuant to which we will provide funding for certain research and development activities at MD Anderson for a period of three years from the date of the MD Anderson License, in an amount between $15 and $20 million per year. In addition, we also expect to enter into additional collaboration and technology transfer agreements with third parties to accelerate technology and clinical development of these product candidates. We expect to increase the level of our overall research and development expenses significantly going forward as a result of each of these activities.

Competition

The development and commercialization for new products to treat cancer, including the indications we are pursuing is highly competitive, and considerable competition exists from major pharmaceutical, biotechnology and specialty cancer companies. In addition, many of these companies have more experience in preclinical and clinical development, manufacturing, regulatory, and global commercialization. We are also competing with academic institutions, governmental agencies, and private organizations that are conducting research in the field of cancer. Competition for highly qualified employees and their retention is intense, particularly as companies adjust to the current economic environment.

License Agreements, Intellectual Property and Other Agreements

Our goal is to obtain, maintain, and enforce patent protection for our products, formulations, processes, methods, and other proprietary technologies in order to preserve our trade secrets and to operate without infringing upon the proprietary rights of other parties. Our policy is to actively seek the broadest possible intellectual property protection for our product candidates through a combination of contractual arrangements and patents, both in the United States and abroad.

Exclusive Channel Partner Agreement with Intrexon Corporation for the Cancer Programs

On January 6, 2011, the Company entered into an Exclusive Channel Partner Agreement, or the Channel Agreement, with Intrexon that governs a "channel partnering" arrangement in which the Company uses Intrexon's technology to research, develop and commercialize products in which DNA is administered to humans for expression of anti-cancer effectors for the purpose of treatment or prophylaxis of cancer, which the Company collectively refers to as the Cancer Program. This Channel Agreement establishes committees comprised of representatives of the Company and Intrexon that govern activities related to the Cancer Program in the areas of project establishment, chemistry, manufacturing and controls, clinical and regulatory matters, commercialization efforts and intellectual property.

The Channel Agreement grants the Company a worldwide license to use patents and other intellectual property of Intrexon in connection with the research, development, use, importing, manufacture, sale, and offer for sale of products involving DNA administered to humans for expression of anti-cancer effectors for the purpose of treatment or prophylaxis of cancer, which is collectively referred to as the ZIOPHARM Products. Such license is exclusive with respect to any clinical development, selling, offering for sale or other commercialization of ZIOPHARM Products, and otherwise is non-exclusive. Subject to limited exceptions, the Company may not sublicense these rights without Intrexon's written consent.

Under the Channel Agreement, and subject to certain exceptions, the Company is responsible for, among other things, the performance of the Cancer Program, including the development, commercialization and certain aspects of manufacturing of ZIOPHARM Products. Intrexon is responsible for establishing manufacturing capabilities and facilities for the bulk manufacture of products developed under the Cancer Program, certain other aspects of manufacturing and costs of discovery-stage research with respect to platform improvements and costs of filing, prosecution and maintenance of Intrexon's patents.

Subject to certain expense allocations and other offsets provided in the Channel Agreement, the Company will pay Intrexon on a quarterly basis 50% of net profits derived in that quarter from the sale of ZIOPHARM Products, calculated on a ZIOPHARM Product-by- ZIOPHARM Product basis. The Company has likewise agreed to pay Intrexon on a quarterly basis 50% of revenue obtained in that quarter from a sublicensor in the event of a sublicensing arrangement. In addition, in partial consideration for each party's execution and delivery of the Channel Agreement, the Company entered into a stock purchase agreement with Intrexon.

Upon termination of the Channel Agreement, the Company may continue to develop and commercialize any ZIOPHARM Product that, at the time of termination:

- Is being commercialized by the Company;
- Has received regulatory approval;
- Is a subject of an application for regulatory approval that is pending before the applicable regulatory authority; or
- Is the subject of at least an ongoing Phase 2 clinical trial (in the case of a termination by Intrexon due to an uncured breach or a voluntary termination by the Company), or an ongoing Phase 1 clinical trial in the field (in the case of a termination by the Company due to an uncured breach or a termination by

Intrexon following an unconsented assignment by the Company or its election not to pursue development of a Superior Therapy (as defined in the Channel Agreement)).

The Company's obligation to pay 50% of net profits or revenue described above with respect to these "retained" products will survive termination of the Channel Agreement.

On March 27, 2015, the Company and Intrexon entered into an Exclusive Channel Partner Amendment, or ECP Amendment, amending the Channel Agreement. The ECP Amendment modifies the scope of the parties' collaboration under the Channel Agreement in connection with the Ares Trading Agreement discussed below. Pursuant to the ECP Amendment, the chimeric antigen receptor T cell products to be developed and commercialized pursuant to the Ares Trading Agreement shall be included within the Intrexon/ZIOPHARM collaboration under the Channel Agreement. The ECP Amendment provides that Intrexon will pay to the Company fifty percent of all payments Intrexon receives for upfronts, milestones and royalties under the Ares Trading Agreement.

Exclusive Channel Collaboration Agreement with Intrexon Corporation for Graft-Versus-Host Disease

On September 28, 2015, the Company, entered into a new Exclusive Channel Collaboration Agreement, or the GvHD Agreement, with Intrexon, whereby the Company will use Intrexon's technology directed towards *in vivo* expression of effectors to research, develop and commercialize products for use in the treatment or prevention of graft-versus-host disease, or GvHD. The exclusive collaboration, or the GvHD Program, will focus on the pursuit of the following engineered cell therapy strategies, used either separately or in combination, for the targeted treatment of GvHD: (i) the infusion of regulatory T cell expressing membrane-bound and/or soluble interleukin-2 and (ii) the deployment of orally delivered, genetically modified *L. lactis* that express interleukin-2 to modulate immune function. The GvHD Agreement establishes committees comprised of Company and Intrexon representatives that will govern activities related to the GvHD Program in the areas of project establishment, chemistry, manufacturing and controls, clinical and regulatory matters, commercialization activities and intellectual property.

The GvHD Agreement grants the Company a worldwide license to use specified patents and other intellectual property of Intrexon in connection with the research, development, use, importing, manufacture, sale, and offer for sale of products developed under the GvHD Program, or the Products. Such license is exclusive with respect to any clinical development, selling, offering for sale or other commercialization of the Products, and otherwise is non-exclusive. Subject to limited exceptions, the Company may not sublicense the rights described without Intrexon's written consent.

Under the GvHD Agreement, and subject to certain exceptions, the Company is responsible for, among other things, the performance of the GvHD Program including development, commercialization and certain aspects of manufacturing of the Products. Among other things, Intrexon is responsible for the costs of establishing manufacturing capabilities and facilities for the bulk manufacture of the Products, certain other aspects of manufacturing, costs of discovery-stage research with respect to platform improvements and costs of filing, prosecution and maintenance of Intrexon's patents.

The Company paid Intrexon a technology access fee of $10 million in cash and will reimburse Intrexon for all research and development costs. Subject to certain expense allocations and other offsets provided in the GvHD Agreement, the GvHD Agreement also provides for equal sharing of the profits derived from the sale of the Products.

During the first 24 months after September 28, 2015, the GvHD Agreement may be terminated by (i) either party in the event of a material breach by the other, except for the failure of the other party to use diligent efforts or to comply with any diligence obligations set forth in the GvHD Agreement and (ii) Intrexon under certain circumstances if the Company assigns its rights under the GvHD Agreement without Intrexon's consent. Following such twenty-four month period, Intrexon may also terminate the GvHD Agreement if the

Company elects not to pursue the development of the GvHD Program identified by Intrexon that is a "Superior Therapy," as such term is defined in the GvHD Agreement. Also following such period, the Company may voluntarily terminate the GvHD Agreement upon 90 days' written notice to Intrexon.

Upon termination of the GvHD Agreement, the Company may continue to develop and commercialize any Product that, at the time of termination:

- is being commercialized by the Company,
- has received regulatory approval,
- is a subject of an application for regulatory approval that is pending before the applicable regulatory authority, or
- is the subject of at least an ongoing Phase 2 clinical trial (in the case of a termination by Intrexon due to a Company uncured breach or a voluntary termination by the Company), or an ongoing Phase 1 clinical trial (in the case of a termination by the Company due to an Intrexon uncured breach or a termination by Intrexon following an unconsented assignment by the Company or the Company's election not to pursue development of a Superior Therapy).

The Company's obligation to pay 50% of net profits or revenue with respect to these "retained" products will survive termination of the GvHD Agreement.

The Company has determined that the rights acquired in the GvHD Agreement represent in-process research and development with no alternative future use. Accordingly, the Company recorded a charge of $10.0 million to research and development expense during the year ended December 31, 2015.

License Agreement—The University of Texas MD Anderson Cancer Center

On January 13, 2015, the Company, together with Intrexon, entered into a License Agreement, or the MD Anderson License, with The University of Texas MD Anderson Cancer Center, or MD Anderson. Pursuant to the MD Anderson License, the Company and Intrexon hold an exclusive, worldwide license to certain technologies owned and licensed by MD Anderson including technologies relating to novel chimeric antigen receptor (CAR) T cell therapies, non-viral gene transfer systems, genetic modification and/or propagation of immune cells and other cellular therapy approaches, Natural Killer, or NK Cells and T cell receptors, or TCR's arising from the laboratory of Laurence Cooper, M.D., Ph.D., who became the Chief Executive Officer of the Company on May 7, 2015 and was formerly a tenured professor of pediatrics at MD Anderson and now currently a visiting scientist under that institution's policies, as well as either co-exclusive or non-exclusive licenses under certain related technologies.

Pursuant to the terms of the MD Anderson License, MD Anderson received consideration consisting of $50 million in shares of the Company's common stock (or 10,124,561 shares), and $50 million in shares of Intrexon's common stock, in each case based on a trailing 20 day volume weighted average of the closing price of the Company's and Intrexon's common stock ending on the date prior to the announcement of the entry into the MD Anderson License, collectively referred to as the License Shares, pursuant to the terms of the License Shares Securities Issuance Agreement described below. The License Shares were issued to MD Anderson on March 11, 2015 pursuant to the terms of the MD Anderson License.

On January 9, 2015, in order to induce MD Anderson to enter into the MD Anderson License on an accelerated schedule, the Company and Intrexon entered into a letter agreement, or the Letter Agreement, pursuant to which MD Anderson received consideration of $7.5 million in shares of the Company's common stock (or 1,597,602 shares), and $7.5 million in shares of Intrexon's common stock, in each case based on a trailing 20 day volume weighted average of the closing price of the Company's and Intrexon's common stock ending on the date prior to the execution of the Letter Agreement, collectively referred to as the Incentive Shares, in the event that the MD

Anderson License was entered into on or prior to 8:00 am Pacific Time on January 14, 2015. The Incentive Shares were issued to MD Anderson on March 11, 2015 pursuant to the terms of the Incentive Shares Securities Issuance Agreement described below.

On August 17, 2015, the Company, Intrexon and MD Anderson entered into a research and development agreement, or the Research and Development Agreement, to formalize the scope and process for the transfer by MD Anderson, pursuant to the terms of the MD Anderson License, of certain existing research programs and related technology rights, as well as the terms and conditions for future collaborative research and development of new and ongoing research programs.

Pursuant to the Research and Development Agreement, the Company, Intrexon and MD Anderson have agreed to form a joint steering committee that will oversee and manage the new and ongoing research programs. As provided under the MD Anderson License, the Company will provide funding for research and development activities in support of the research programs under the Research and Development Agreement for a period of three years and in an amount of no less than $15 million and no greater than $20 million per year. The Company made three quarterly payments totaling an aggregate of $11.25 million under this arrangement. As of December 31, 2015, MD Anderson has used $911 thousand to offset costs incurred pursuant to the MD Anderson License and the Research and Development Agreement. The net balance of $10.3 million is included in other current assets at December 31, 2015.

The term of the MD Anderson License expires on the last to occur of (a) the expiration of all patents licensed thereunder, or (b) the twentieth anniversary of the date of the License; provided, however, that following the expiration of the term of the MD Anderson License, the Company and Intrexon shall then have a fully-paid up, royalty free, perpetual, irrevocable and sublicensable license to use the licensed intellectual property thereunder. After ten years from the date of the MD Anderson License and subject to a 90-day cure period, MD Anderson will have the right to convert the MD Anderson License into a non-exclusive license if the Company and Intrexon are not using commercially reasonable efforts to commercialize the licensed intellectual property on a case-by-case basis. After five years from the date of the MD Anderson License and subject to a 180-day cure period, MD Anderson will have the right to terminate the MD Anderson License with respect to specific technology(ies) funded by the government or subject to a third party contract if the Company and Intrexon are not meeting the diligence requirements in such funding agreement or contract, as applicable. MD Anderson may also terminate the agreement with written notice upon material breach by the Company and Intrexon, if such breach has not been cured within 60 days of receiving such notice. In addition, the MD Anderson License will terminate upon the occurrence of certain insolvency events for both the Company and Intrexon and may be terminated by the mutual written agreement of the Company, Intrexon and MD Anderson.

In connection with the License and the issuance of the License Shares and the Incentive Shares, on January 13, 2015, the Company and MD Anderson entered into a Registration Rights Agreement, or the Registration Rights Agreement, pursuant to which the Company agreed to file a “resale” registration statement, or the Registration Statement, registering the resale of the License Shares, the Incentive Shares and any other shares of the Company’s common stock held by MD Anderson on the date that the Registration Statement is filed Under the Registration Rights Agreement, the Company is obligated to maintain the effectiveness of the Registration Statement until all securities therein are sold or are otherwise can be sold pursuant to Rule 144, without any restrictions. A prospectus supplement under the Company’s already effective registration statement on Form S-3 (File No. 333-201826), was filed on April 1, 2015 in satisfaction of the Company’s obligations under the Registration Rights Agreement.

The Company has determined that the rights acquired in the MD Anderson License represent in process research and development with no alternative future use. Accordingly, the Company recorded a charge of $67.3 million to research and development expense representing the fair value of the 11,722,163 shares of its common stock on the date the MD Anderson License was executed.

Ares Trading License and Collaboration Agreement

On March 27, 2015, the Company and Intrexon signed a worldwide License and Collaboration Agreement, or the Ares Trading Agreement, with Ares Trading S.A., or Ares Trading, a company within the biopharmaceutical business of Merck KGaA, Darmstadt, Germany, through which the parties established a collaboration for the research and development and commercialization of certain products for the prophylactic, therapeutic, palliative or diagnostic use for cancer in humans.

Under the collaboration, Ares Trading will elect CAR-T targets, of which two have been selected, and for which Ares Trading will provide certain research funding. The Company is responsible for certain research and development expenditures. Once these candidates reach investigational new drug IND stage, the programs will be transferred to Ares Trading for clinical development and commercialization. The Company and Intrexon will also independently conduct research and development on other CAR-T candidates, with Ares Trading having the opportunity during clinical development to opt-in. The Company expects to perform multiple preclinical development programs, each consisting of the development of one product candidate, pursuant to the agreement.

Intrexon is entitled to receive $5.0 million payable in equal quarterly installments over two years for each identified product candidate, which will be used to fund discovery work. The Company will be responsible for costs exceeding the quarterly installments and all other costs of the preclinical research and development.

Ares Trading paid a non-refundable upfront fee of $115.0 million to Intrexon as consideration for entry into the Ares Trading Agreement. Pursuant to the ECP Amendment, the Company was entitled to receive 50% of the upfront fee, or $57.5 million, which was received from Intrexon in July 2015.

The Ares Trading Agreement provides for up to $413.0 million of potential payments for certain development and commercial milestones for each product candidate, and royalties ranging from the lower-single digits to the low-teens of net sales derived from the sale of products developed under agreement. The Ares Trading Agreement also provides for up to $50.0 million of payments upon the achievement of certain technical milestones. Intrexon will pay 50% of all milestone and royalty payments that it receives under the Ares Trading Agreement to the Company pursuant to the ECP Amendment.

The term of the Ares Trading Agreement commenced in May 2015 and may be terminated by either party in the event of a material breach as defined in the agreement and may be terminated voluntarily by Ares Trading upon 90 days written notice to the Company.

The Company considered FASB Accounting Standards Codification 605-25, *Multiple-Element Arrangements* , in evaluating the appropriate accounting for the Ares Trading Agreement. In accordance with this guidance, the Company identified the license and research and development services as the Company's deliverables in the arrangement. The Company concluded that the license does not have standalone value from the research and development services. Accordingly, the Ares Trading Agreement is accounted for by the Company as a single unit of accounting. The $57.5 million upfront payment received by the Company was recorded as deferred revenue and is being recognized over the estimated period of performance of the research and development services, beginning with the commencement of the research and development services. During the twelve months ended December 31, 2015, the Company recognized $3.2 million of revenue related to the Ares Trading Agreement. The remaining balance of deferred revenue associated with the upfront payment was $54.3 million, of which $6.4 million is current and $47.9 million is classified as long term at December 31, 2015.

License Agreements with DEKK-Tec, Inc. and Southern Research Institute

On October 15, 2004, the Company entered into a license agreement with DEKK-Tec, Inc., or DEKK-Tec, pursuant to which it was granted an exclusive, worldwide license for palifosfamide. All of the Company's rights and obligations under the DEKK-Tec license agreement was assigned to Predictive Therapeutics, Ltd., in the first quarter of 2016, with the exception of the Company's obligations under a stock option to acquire 13,808 shares of the Company's common stock at an exercise price of $0.02 per share, which remains outstanding in accordance with the terms.

On February 5, 2007, the Company exercised an option to enter into an exclusive license agreement with Southern Research Institute, or SRI, for certain isophosphoramide mustard analogs. Under the license agreement, the Company was required to remit minimum annual royalty payments of $25 thousand until the first commercial sale of a licensed product. These payments were made for the years ended December 31, 2015, 2014, and 2013. All of the Company's remaining rights and obligations under the SRI license agreement were assigned to Predictive Therapeutics, Ltd., in the first quarter of 2016.

License Agreement with Predictive Therapeutics, Ltd.

On November 12, 2015, the Company entered into a License Agreement with Predictive Therapeutics, Ltd., or Predictive. Pursuant to the License Agreement, the Company granted Predictive an exclusive license to develop and commercialize palifosfamide.

In exchange, the Company received an upfront payment of $250 thousand and is entitled to receive additional payments of up to $12.8 million in development-and sales-based milestones, single digit royalty payments on net sales of palifosfamide, once commercialized, and a percentage of any sublicense revenues generated by Predictive. Predictive will be responsible for all costs related to the development, manufacturing and commercialization of palifosfamide. The Company's Licensors, as defined in the agreement, will receive a portion of all milestone and royalty payments made by Predictive to the Company in accordance with the terms of the Company's license agreement with the Licensors.

The $250 thousand upfront payment received in November 2015 is being amortized over the period of the Company's research and development effort related to transitional services. There are certain deliverables that are included in the License Agreement including transfer of intellectual property and prior research and development results, which are estimated by management to be completed by June 30, 2016. Accordingly, the Company has recorded $50 thousand in revenue during the twelve months ended December 31, 2015. The remaining deferred revenue balance of $200 thousand at December 31, 2015 has been classified as current. In accordance with the License Agreement with Predictive, the Company is no longer obligated to continue their research and development efforts beyond the transitional services. In the first quarter of 2016, all of the Company's rights and obligations under the DEKK-Tec and SRI license agreements were assigned to Predictive Therapeutics, Ltd., with the exception of the Company's obligation to DEKK-Tec under a stock option to acquire 13,808 shares of the Company's common stock at an exercise price of $0.02 per share, which remains outstanding in accordance with the terms.

Patent and Technology License Agreement—The University of Texas MD Anderson Cancer Center and the Texas A&M University System.

On August 24, 2004, the Company entered into a patent and technology license agreement with MD Anderson and the Texas A&M University System, which the Company refers to, collectively, as the Licensors. Under this agreement, the Company was granted an exclusive, worldwide license to rights (including rights to U.S. and foreign patent and patent applications and related improvements and know-how) for the manufacture and commercialization of two classes of organic arsenicals (water- and lipid-based) for human and animal use. The class of water-based organic arsenicals includes darinaparsin.

The Company issued options to purchase 50,222 shares outside of the Company's stock option plans following the successful completion of certain clinical milestones, of which 37,666 have vested. The remaining 12,556 shares will vest upon enrollment of the first patient in a multi-center pivotal clinical trial i.e. a human clinical trial intended to provide the substantial evidence of efficacy necessary to support the filing of an approvable New Drug Application, or NDA. In addition, the Licensors are entitled to receive certain milestone payments. The Company may be required to make additional payments upon achievement of certain other milestones in varying amounts which on a cumulative basis could total up to an additional $4.5 million. In addition, the Licensors are entitled to receive single digit percentage royalty payments on sales from a licensed product and will also be entitled to receive a portion of any fees that the Company may receive from a possible sublicense under certain circumstances.

Collaboration Agreement with Solasia Pharma K.K.

On March 7, 2011, the Company entered into a License and Collaboration Agreement with Solasia Pharma K.K., or Solasia. Pursuant to the License and Collaboration Agreement, the Company granted Solasia an exclusive license to develop and commercialize darinaparsin in both IV and oral forms and related organic arsenic molecules, in all indications for human use in a pan- Asian/Pacific territory comprised of Japan, China, Hong Kong, Macau, Republic of Korea, Taiwan, Singapore, Australia, New Zealand, Malaysia, Indonesia, Philippines and Thailand.

As consideration for the license, the Company received an upfront payment of $5.0 million to be used exclusively for further clinical development of darinaparsin outside of the pan-Asian/Pacific territory, and will be entitled to receive additional payments of up to $32.5 million in development-based milestones and up to $53.5 million in sales-based milestones. The Company will also be entitled to receive double digit royalty payments from Solasia based upon net sales of licensed products in the applicable territories, once commercialized, and a percentage of sublicense revenues generated by Solasia. Under the License and Collaboration Agreement, the Company provided Solasia with drug product to conduct clinical trials. These transfers were accounted for as a reduction of research and development costs and an increase in collaboration receivables. The agreement provides that Solasia will be responsible for the development and commercialization of darinaparsin in the pan-Asian/Pacific territory.

On July 31, 2014, the Company entered into an amendment and restatement of the License and Collaboration Agreement granting Solasia an exclusive worldwide license to develop and commercialize darinaparsin, and related organoarsenic molecules, in both intravenous and oral forms in all indications for human use. In exchange, the Company will be eligible to receive from Solasia development-and sales-based milestones, a royalty on net sales of darinaparsin, once commercialized, and a percentage of any sublicense revenues generated by Solasia. Solasia will be responsible for all costs related to the development, manufacturing and commercialization of darinaparsin. The Company's Licensors, as defined in the agreement, will receive a portion of all milestone and royalty payments made by Solasia to the Company in accordance with the terms of the Company's license agreement with the Licensors.

The $5.0 million upfront payment received in March 2011 is being amortized over the period of the Company's research and development effort. The Company originally estimated this period to be 75 months. In accordance with the amended and restated License and Collaboration Agreement with Solasia, the Company is no longer obligated to continue their research and development efforts in connection with the upfront payment. However, there are certain deliverables that are included in the amended and restated License and Collaboration Agreement including transfer of intellectual property and prior research and development results, which were originally estimated by management to be completed by March 31, 2015 when the amended and restated License and Collaboration Agreement was signed in July 2014. Management subsequently reassessed the period of performance related to the remaining transitional services to be completed under the amended and restated License and Collaboration Agreement and determined that the services are now expected to be completed by March 31, 2016. Accordingly, the Company has recorded $1.1 million in revenue during the twelve months ended December 31, 2015. The remaining deferred revenue balance of $272 thousand at December 31, 2015 has been classified as current.

License Agreement with Baxter Healthcare Corporation

On November 3, 2006, the Company entered into a definitive Asset Purchase Agreement for indibulin and a License Agreement to proprietary nanosuspension technology with affiliates of Baxter Healthcare S.A. The purchase included the entire indibulin intellectual property portfolio as well as existing drug substance and capsule inventories. During 2014, we determined to no longer pursue clinical development of indibulin. During the years ended December 31, 2015 and 2014, the installment payments of $250 thousand were met and expensed.

CRO Services Agreement with Novella Clinical, Inc.

On December 4, 2008, the Company entered into a Master Clinical Research Organization Services Agreement with Novella Clinical, Inc., or Novella, under which Novella provides clinical research organization, or CRO, services in support of the Company's clinical trials. The work order for the newest trial being conducted by Novella was signed on November 2, 2012. Novella was entitled to cumulative payments of up to $790 thousand under these arrangements, which is payable in varying amounts upon Novella achieving specified milestones.

On August 18, 2014 and November 6, 2014, the Company signed two respective amendments of the Master Clinical Research Organization Services Agreement with Novella. The amendments reflect the removal of data management, statistical and clinical study report services, as well as a change in the timeline and scope of clinical trial support. During the year ended December 31, 2014, three clinical milestones were met and expensed totaling $236 thousand. The remaining milestone of $10 thousand was met and expensed during the quarter ended March 31, 2015. There are no remaining obligations under this agreement.

Patents and Other Intellectual Property Rights and Protection.

Patents extend for varying periods according to the date of patent filing or grant and the legal term of patents in the various countries where patent protection is obtained. The actual protection offering by a patent, which can vary from country to country, depends of the type of patent, the scope of its coverage and the availability of legal remedies in the country.

Pursuant to the Drug Price Competition and Patent Term Restoration Act of 1984, referred to as the Hatch-Waxman Amendments, some of our patents, under certain conditions, may be eligible for limited patent term extension for a period of up to five years as compensation for patent term lost during drug development and the FDA regulatory review process. However, this extension period cannot be extended beyond 14 years from the drug's approval date. The patent term restoration period is generally one-half the period of time elapsed between the effective date of an IND application or the issue date of the patent, whichever is later, and the submission date of an NDA, plus the period of time between the submission date of the NDA or the issue date of the patent, whichever is later, and FDA approval. The United States Patent and Trademark Office, in consultation with the FDA, reviews and approves applications for any patent term extension or restoration. We intend to seek the benefits of this statute, but there can be no assurance that we will be able to obtain any such benefits.

We also depend upon the skills, knowledge, and experience of our scientific and technical personnel, as well as those of our advisors, consultants, and other contractors, none of which is patentable. To help protect proprietary know-how, which is not patentable, and for inventions for which patents may be difficult to enforce, we currently rely, and in the future will continue to rely, on trade secret protection and confidentiality agreements to protect our interests. To this end, we generally require employees, consultants, advisors and other contractors to enter into confidentiality agreements that prohibit the disclosure of confidential information and, where applicable, require disclosure and assignment to us of the ideas, developments, discoveries and inventions important to our business.

Our patent position and proprietary rights are subject to certain risks and uncertainties. Please read the *"* Risk Factors *"* section of this report for information about certain risks and uncertainties that may affect our patent position and proprietary rights.

Additional information as of December 31, 2015 about material patents and other proprietary rights covering our product candidates is set forth below.

Ad-RTS-IL-12 + veledimex and DC-RTS-IL-12 + veledimex.

The patent estate licensed to us by Intrexon covering Ad-RTS-IL-12 + veledimex and DC-RTS-IL-12 + veledimex compositions, methods of use, methods of manufacture, and formulations includes over one hundred issued U.S. patents and applications which are scheduled to expire starting in 2018 and include coverage through

at least 2031. This portfolio also includes issued and pending foreign patents in Europe, Canada, Japan, Australia and other countries. The term of one or more of the issued patents may be extended due to the regulatory approval process.

CAR+ Cells

In January 2015, we in-licensed from M.D. Anderson a technology portfolio that includes intellectual property directed to certain CAR+ T cell technology. Under the terms of the agreement, we have an exclusive license to certain of the intellectual property, a co-exclusive license to certain of the intellectual property technology and a non-exclusive license to certain of the intellectual property technology. Our rights to the M.D. Anderson intellectual property flow to us via our agreement with Intrexon.

Governmental Regulation

The research, development, testing, manufacture, labeling, promotion, advertising, distribution, import, export and marketing, among other things, of our products are extensively regulated by governmental authorities in the United States and other countries. In the United States, the FDA regulates drugs under the Federal Food, Drug, and Cosmetic Act, or the FDCA, and biologics under the Public Health Service Act, or PSHA, as well as their respective implementing regulations. Failure to comply with the applicable U.S. requirements may subject us to administrative or judicial sanctions, such as FDA refusal to approve pending NDAs or Biologics License Applications, or BLAs, warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, and/or criminal prosecution. Moreover, if our product candidates are approved by the FDA, government coverage and reimbursement policies will both directly and indirectly affect our ability to successfully commercialize our product candidates, and such coverage and reimbursement policies will be affected by future healthcare reform measures. In addition, we may be subject to state and federal laws, including anti-kickback statutes and false claims statutes as well as data privacy laws that restrict certain business practices in the biopharmaceutical industry.

Product Approval Process . None of our product candidates may be marketed in the United States until it has received FDA approval. The steps required before a drug or biologic product may be marketed in the United States include:

- Preclinical laboratory tests, animal studies, and formulation studies;
- Submission to the FDA of an IND for human clinical testing, which must become effective before human clinical trials may begin;
- Adequate and well-controlled human clinical trials to establish the safety and efficacy of the product for each indication;
- Submission to the FDA of NDA or BLA;
- Satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the product is produced to assess compliance with current good manufacturing practices, or cGMPs and if applicable, current good tissue practices, or GTPs; and
- FDA review and approval of the NDA or BLA.

Preclinical tests include laboratory evaluation of product chemistry, pharmacokinetics, toxicity, immunogenicity and formulation, as well as animal studies. The conduct of the preclinical tests and formulation of the products for testing must comply with federal regulations and requirements. The results of the preclinical tests, together with manufacturing information and analytical data, are submitted to the FDA as part of an IND application, which must become effective before human clinical trials may begin. An IND automatically takes effect 30 calendar days after receipt by the FDA, unless before that time the FDA applies a clinical hold and raises safety concerns or questions about issues such as the design of the trials as outlined in the IND. In such a case,

the IND sponsor and the FDA must resolve any outstanding FDA concerns or questions before clinical trials may proceed. We cannot be certain that submission of an IND will result in the FDA allowing a clinical trial to be initiated.

If a gene therapy trial is conducted at, or sponsored by, institutions receiving NIH funding for recombinant DNA research, prior to the submission of an IND to the FDA, a protocol and related documents must be submitted to, and the study registered with, the NIH Office of Biotechnology Activities, or the OBA, pursuant to the NIH Guidelines for Research Involving Recombinant DNA Molecules, or the NIH Guidelines. Compliance with the NIH Guidelines is mandatory for investigators at institutions receiving NIH funds for research involving recombinant DNA. However, many companies and other institutions, not otherwise subject to the NIH Guidelines, voluntarily follow them. The NIH is responsible for convening the recombinant DNA advisory committee, or RAC, that discusses protocols that raise novel or particularly important scientific, safety or ethical considerations at one of its quarterly public meetings. The OBA will notify the FDA of the RAC's decision regarding the necessity for full public review of a gene therapy protocol. RAC proceedings and reports are posted to the OBA website and may be accessed by the public.

Clinical trials involve the administration of an investigational drug or biologic to human subjects under the supervision of qualified investigators. Clinical trials are conducted according to protocols that detail the study objectives, the parameters to be used in monitoring participants' safety, and the effectiveness criteria by which the investigational product will be evaluated. Each protocol must be submitted to the FDA as part of the IND.

Clinical trials are typically conducted in three sequential phases, but the phases may overlap. The study protocol and informed consent information for study subjects in a clinical trial must also be approved by an Institutional Review Board for each institution where the trial will be conducted. Study subjects must sign an informed consent form before participating in a clinical trial. Phase 1 usually involves the initial introduction of the investigational product into people to evaluate its short-term safety, dosage tolerance, metabolism, pharmacokinetics, and pharmacologic actions and, if possible, to gain an early indication of its effectiveness. Phase 2 usually involves trials in a limited patient population in order to (1) evaluate dosage tolerance and appropriate dosage; (2) identify possible adverse effects and safety risks; and (3) evaluate preliminarily the efficacy of the drug for specific indications. Phase 3 trials usually continue to evaluate clinical efficacy and further test for safety by using the product in its final form in an expanded patient population. There can be no assurance that Phase 1, Phase 2, or Phase 3 testing will be completed successfully within any specified period of time, if at all. Furthermore, the sponsoring company, an IRB or the FDA may suspend clinical trials at any time on various grounds, including a finding that the subjects or patients are being exposed to an unacceptable health risk.

The FDCA permits the FDA and the IND sponsor to agree in writing on the design and size of clinical studies intended to form the primary basis of a claim of effectiveness in an NDA or BLA. This process is known as Special Protocol Assessment, or SPA, and can be a somewhat lengthy process. An agreement may not be changed by the sponsor or the FDA after the trial begins, except (1) with the written agreement of the sponsor and the FDA, or (2) if the director of the FDA reviewing division determines that "a substantial scientific issue essential to determining the safety or effectiveness of the drug" was identified after the testing began.

Assuming successful completion of the required clinical testing, the results of the preclinical studies and of the clinical studies, together with other detailed information, including information on the manufacture and composition of the product candidate, are submitted to the FDA in the form of an NDA or BLA requesting approval to market the product for one or more indications. An NDA or BLA must be accompanied by a substantial user fee, unless a waiver applies. The testing and approval process requires substantial time, effort, and financial resources. The FDA reviews the application and may deem it to be inadequate to support the registration, and companies cannot be sure that any approval will be granted on a timely basis, if at all. The FDA may also refer the application to the appropriate external advisory committee, typically a panel of clinicians, for review, evaluation and a recommendation as to whether the application should be approved. The FDA is not bound by the recommendations of the advisory committee.

The goals of the NDA/BLA are to provide enough information to permit FDA to reach the following key decisions:

- Is the product safe and effective in its proposed use(s), and do its benefits outweigh its risks?
- Is the product's proposed labeling (package insert) appropriate, and what should it contain? Are measures necessary to mitigate risks of use of the product (referred to as Risk Evaluation and Mitigation Strategies, or REMS)?
- Are the methods used in manufacturing the product and the controls used to maintain its quality adequate to preserve identity, strength, quality, and purity?

The FDA has various programs, including orphan drug, fast track, priority review, and accelerated approval, which are intended to expedite or simplify the process for developing and reviewing drugs, and/or provide for approval on the basis surrogate endpoints, or provide financial incentives and market exclusivity. Generally, drugs that may be eligible for one or more of these programs are those for serious or life-threatening conditions, those with the potential to address unmet medical needs, and those that provide meaningful benefit over existing treatments. A company cannot be certain that any of its investigational drugs will qualify for any of these programs, or that, if a drug does qualify, the review time will be reduced. 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 a drug or biological product available in the United States for this type of disease or condition will be recovered from sales of the product. Orphan designation must be requested before submitting an NDA or BLA. Orphan 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 such drug or biological product for the disease or condition for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications to market the same drug or biological product for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan exclusivity. Competitors, however, may receive approval of different products for the indication for which the orphan product has exclusivity or obtain approval for the same product but for a different indication for which the orphan product has exclusivity. If a drug or biological product designated as an orphan product receives marketing approval for an indication broader than what is designated, it may not be entitled to orphan product exclusivity.

Before approving an NDA or BLA, the FDA usually will inspect the facility or the facilities at which the drug is manufactured and will not approve the product unless cGMP compliance is satisfactory. If the FDA evaluates the NDA or BLA and the manufacturing facilities and deems them to be acceptable, the FDA may issue an approval letter, or in many cases, a complete response letter. The complete response letter contains the conditions that must be met in order to secure final approval of the NDA or BLA. When and if those conditions have met with the FDA's satisfaction, the FDA will issue an approval letter. The approval letter authorizes commercial marketing of the drug or biologic for specific indications. As a condition of NDA/BLA approval, the FDA may require post-marketing testing and surveillance to monitor the drug's safety or efficacy, or impose other conditions.

After approval, certain changes to the approved drug product, such as adding new indications, initiating certain manufacturing changes, or making certain additional labeling claims, are subject to further FDA review and approval. Before a company can market a drug product for any additional indication(s), it must obtain additional approval from the FDA. Obtaining approval for a new indication generally requires that additional clinical studies be conducted. A company cannot be sure that any additional approval for new indications for any product candidate will be approved on a timely basis, or at all.

Post-approval Requirements . Often times, even after a drug has been approved by the FDA for sale, the FDA may require that certain post-approval requirements be satisfied, including the conduct of additional clinical

studies. If such post-approval conditions are not satisfied, the FDA may withdraw its approval of the product. In addition, holders of an approved NDA or BLA are required to: (1) report certain adverse reactions to the FDA; (2) comply with certain requirements concerning advertising and promotional labeling for their products; and (3) continue to have quality control and manufacturing procedures conform to cGMP. The FDA periodically inspects the sponsor's records relating to safety reporting and/or manufacturing facilities; this latter effort includes assessment of cGMP compliance. Accordingly, manufacturers must continue to expend time, money, and effort in the area of production and quality control to maintain cGMP compliance. We intend to use third-party manufacturers to produce our products in clinical and commercial quantities, and future FDA inspections may identify compliance issues at the facilities of our contract manufacturers that may disrupt production or distribution, or require substantial resources to correct. In addition, discovery of problems with a product after approval may result in restrictions on a product, manufacturer, or holder of an approved NDA or BLA, including withdrawal of the product from the market.

Patent Challenge Process Regarding ANDAs. The Hatch-Waxman Act provides incentives for generic pharmaceutical manufacturers to challenge patents on branded pharmaceutical products and/or their methods of use, as well as to develop products comprising non-infringing forms of the patented drugs. The Hatch-Waxman legislation places significant burdens on the Abbreviated New Drug Application, or ANDA, filer to ensure that such challenges are not frivolous, but also offers the opportunity for significant financial reward if the challenge is successful.

If there is a patent listed for the branded drug in the FDA's Orange Book at the time of submission of the ANDA or at any time before the ANDA is approved and the generic company intends to market the generic equivalent prior to the expiration of that patent, the generic company includes a certification asserting that the patent is invalid, unenforceable and/or not infringed, a so-called "paragraph IV certification."

After receiving notice from the FDA that its application is acceptable for review or immediately if the ANDA has been amended to include a paragraph IV certification after the application was submitted to the FDA, the company filing a generic application is required to send the patent holder and the holder of the NDA for the brand-name drug a notice explaining why it believes that the patents in question are invalid, unenforceable or not infringed. Upon receipt of the notice from the generic applicant, the patent holder has 45 days during which to bring a patent infringement suit in federal district court against the generic applicant in order to obtain the 30 month automatic stay.

If a suit is commenced by the patent holder during the 45-day period, the Hatch-Waxman Act provides for an automatic stay on the FDA's ability to grant final approval of the ANDA for the generic product. Patent holders may only obtain one 30-month stay with respect to patents that were listed at the time an ANDA was filed. The period during which the FDA may not approve the ANDA and the patent challenger therefore may not market the generic product is 30 months, or such other period as may be ordered by the court. The 30-month period may or may not, and often does not, coincide with the timing of the resolution of the lawsuit or the expiration of a patent, but if the patent challenge is successful or the challenged patent expires during the 30-month period, the FDA may approve the generic drug for marketing, assuming there are no other obstacles to approval such as periods of non-patent exclusivity given to the NDA holder.

Under the Hatch-Waxman Act, any developer of a generic drug that is considered first to have filed its ANDA for review by the FDA, and whose filing includes a paragraph IV certification, may be eligible to receive a 180-day period of generic market exclusivity. This period of market exclusivity may provide the patent challenger with the opportunity to earn a return on the risks taken and its legal and development costs and to build its market share before other generic competitors can enter the market. If the ANDA of the first applicant accepted for filing is withdrawn, the 180-day exclusivity period is forfeited and unavailable to any other applicant.

Coverage and Reimbursement. Sales of our product candidates, if approved, will depend, in part, on the extent to which such products will be covered by third-party payors, such as government health care programs, commercial insurance and managed healthcare organizations. These third-party payors are increasingly limiting coverage and/or reducing reimbursements for medical products and services. A third-party payor's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be approved. Further, one payor's determination to provide coverage for a product does not assure that other payors will also provide coverage for the product. In addition, the U.S. government, state legislatures and foreign governments have continued implementing cost-containment programs, including price controls, restrictions on reimbursement and requirements for substitution of generic or biosimilar products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit our net revenue and results.

Healthcare Laws and Regulations. We are currently or will in the future be subject to healthcare regulation and enforcement by the federal government and the states and foreign governments in which we will conduct our business once our product candidates are approved. The healthcare laws and regulations that may affect our ability to operate include the following:

- The federal Anti-Kickback Statute makes it illegal for any person or entity to knowingly and willfully, directly or indirectly, solicit, receive, offer, or pay any remuneration that is in exchange for or to induce the referral of business, including the purchase, order, arrangement or lease of any good, facility, item or service for which payment may be made under a federal healthcare program, such as Medicare or Medicaid. The term "remuneration" has been broadly interpreted to include anything of value.
- Federal false claims and false statement laws, including the federal civil False Claims Act, prohibits, among other things, any person or entity from knowingly presenting, or causing to be presented, for payment to, or approval by, federal programs, including Medicare and Medicaid, claims for items or services, including drugs, that are false or fraudulent.
- HIPAA created additional federal criminal statutes that prohibit among other actions, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, including private third-party payors or making any false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services.
- HIPAA, as amended by HITECH, and their implementing regulations, imposes obligations on certain types of individuals and entities regarding the electronic exchange of information in common healthcare transactions, as well as standards relating to the privacy and security of individually identifiable health information.
- The federal Physician Payments Sunshine Act requires certain manufacturers of products for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program, with specific exceptions, to report annually to the Centers for Medicare & Medicaid Services, or CMS, information related to payments or other transfers of value made to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members.

Also, many states have similar laws and regulations, such as anti-kickback and false claims laws that may be broader in scope and may apply regardless of payor, in addition to items and services reimbursed under Medicaid and other state programs. Additionally, we may be subject to state laws that require biopharmaceutical companies to comply with the federal government's and/or industry's voluntary compliance guidelines, state laws that require biopharmaceutical manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures, as well as state and foreign laws governing the privacy and security of health information, many of which differ from each other in significant ways and often are not preempted by HIPAA. If our operations are found to be in violation of any of these federal, state or foreign laws or regulations, we may be subject to penalties, including without limitation, administrative or civil penalties, imprisonment, damages, fines, disgorgement, exclusion from participation in

government healthcare programs, contractual damages, reputational harm, diminished profits and future earnings, or the curtailment or restructuring of our operations.

Healthcare Reform. The United States and some foreign jurisdictions are considering or have enacted a number of legislative and regulatory proposals to change the healthcare system in ways that could affect our ability to sell our products profitably. By way of example, in March 2010, the ACA was signed into law, which intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add transparency requirements for the healthcare and health insurance industries, impose taxes and fees on the health industry and impose additional health policy reforms.

There have been judicial and Congressional challenges to ACA and there may be additional challenges and amendments to ACA in the future. Other legislative changes have been proposed and adopted in the United States since the ACA. Through the process created by the Budget Control Act of 2011, there are automatic reductions of Medicare payments to providers up to 2% per fiscal year, which went into effect in April 2013 and, following passage of the Bipartisan Budget Act of 2015, will remain 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, further reduced Medicare payments to certain providers. Moreover, recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their commercial products. For example, in 2015 several U.S. Congressional inquiries were initiated regarding certain drug manufacturers' pricing practices and legislation proposed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs. We expect that ACA, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and lower reimbursement, and in additional downward pressure on the price that we receive for any approved product. We cannot predict what healthcare reform initiatives may be adopted in the future.

Employees

As of February 10, 2016 we had 28 full-time employees, 17 of whom were engaged in research and development activities and 11 of whom were engaged in business development, finance, information systems, facilities, human resources or administrative support. None of our employees are subject to a collective bargaining agreement.

Corporate Information

We originally incorporated in Colorado in September 1998 (under the name Net Escapes, Inc.) and later changed our name to "EasyWeb, Inc." in February 1999. We re-incorporated in Delaware on May 16, 2005 under the same name. On September 13, 2005, we completed a "reverse" acquisition of privately held ZIOPHARM, Inc., a Delaware corporation. To effect this transaction, we caused ZIO Acquisition Corp., our wholly-owned subsidiary, to merge with and into ZIOPHARM, Inc., with ZIOPHARM, Inc. surviving as our wholly owned subsidiary. In accordance with the terms of the merger, the outstanding common stock of ZIOPHARM, Inc. automatically converted into the right to receive an aggregate of approximately 97.3% of our outstanding common stock (after giving effect to the transaction). Following the merger, we caused ZIOPHARM, Inc. to merge with and into us and we changed our name to "ZIOPHARM Oncology, Inc." Although EasyWeb, Inc. was the legal acquirer in the transaction, we accounted for the transaction as a reverse acquisition under generally accepted accounting principles. As a result, ZIOPHARM, Inc. became the registrant with the Commission and the historical financial statements of ZIOPHARM, Inc. became our historical financial statements.

Our principal executive offices are located at One First Avenue, Parris Building 34, Navy Yard Plaza, Boston, Massachusetts 02129, and our telephone number is (617) 259-1970.

Available Information

Our website address is www.ziopharm.com. Our website and information included in or linked to our website are not part of this Annual Report on Form 10-K. We file reports with the SEC, which we make available on our website free of charge. These reports include annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to such reports, each of which is provided on our website as soon as reasonably practicable after we electronically file such materials with or furnish them to the SEC. You can also read and copy any materials we file with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Washington, DC 20549. You can obtain additional information about the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. In addition, the SEC maintains a website (www.sec.gov) that contains reports, proxy and information statements, and other information regarding issuers, like us, that file electronically with the SEC, including us.

Item 1A. Risk Factors

An investment in our common stock is very risky. In addition to the other information in this annual report on Form 10-K, you should carefully consider the following risk factors in evaluating us and our business. If any of the events described in the following risk factors were to occur, our business, financial condition, results of operation and future growth prospects would likely be materially and adversely affected. In that event, the trading price of our common stock could decline and you could lose all or a part of your investment in our common stock. Therefore, we urge you to carefully review this entire report and consider the risk factors discussed below. Moreover, the risks described below are not the only ones that we face. Additional risks not presently known to us or that we currently deem immaterial may also affect our business, financial condition, operating results or prospects.

RISKS RELATED TO OUR BUSINESS

Our plans to develop and commercialize non-viral and viral adoptive cellular therapies based on engineered cytokines and novel chimeric antigen receptor (CAR) T cell and NK cell therapies as well as T cell Receptor (TCR) therapies can be considered as new approaches to cancer treatment that present significant challenges in a competitive landscape and the success of our efforts depends in large part on our owned and licensed intellectual property, and our efforts may be affected by litigation and developments in intellectual property law outside of our control.

We intend to employ technologies such as licensed from MD Anderson pursuant to the MD Anderson License described above, and from Intrexon, pursuant to our existing Channel Agreement and ECP Amendment with Intrexon, to pursue the development and commercialization of non-viral and viral adoptive cellular therapies based on cytokines, T cells, NK cells, CARs and TCR's possibly under control of the RTS ® and other switch technologies targeting both hematologic and solid tumor malignancies. Because this is a new approach to cancer immunotherapy and cancer treatment generally, developing and commercializing product candidates subjects us to a number of challenges, including:

- obtaining regulatory approval from the FDA and other regulatory authorities that have very limited experience with the commercial development of genetically modified T cell and NK cell therapies for cancer;
- developing and deploying consistent and reliable processes for engineering a patient's T cells or NK cells ex vivo and infusing the engineered T cells or NK cells back into the patient;
- possibly conditioning patients with chemotherapy in conjunction with delivering each of the potential products, which may increase the risk of adverse side effects of the potential products;
- educating medical personnel regarding the potential side effect profile of each of the potential products, such as the potential adverse side effects related to cytokine release;
- developing processes for the safe administration of these potential products, including long-term follow-up for all patients who receive the potential products;
- sourcing additional clinical and, if approved, commercial supplies for the materials used to manufacture and process the potential products;
- developing a manufacturing process and distribution network with a cost of goods that allows for an attractive return on investment;
- establishing sales and marketing capabilities after obtaining any regulatory approval to gain market acceptance;
- developing therapies for types of cancers beyond those addressed by the current potential products; and
- not infringing the intellectual property rights, in particular, the patent rights, of third parties, including competitors such as developing NK cell therapies.

We cannot be sure that immunotherapy technologies that we intend to develop in partnership with MD Anderson and Intrexon will yield satisfactory products that are safe and effective, scalable, or profitable. Moreover, public perception of therapy safety issues, including adoption of new therapeutics or novel approaches to treatment, may adversely influence the willingness of subjects to participate in clinical trials, or if approved, of physicians to subscribe to the novel treatment mechanics. Physicians, hospitals and third-party payors often are slow to adopt new products, technologies and treatment practices that require additional upfront costs and training. Physicians may not be willing to undergo training to adopt this novel and personalized therapy, may decide the therapy is too complex to adopt without appropriate training and may choose not to administer the therapy. Based on these and other factors, hospitals and payors may decide that the benefits of this new therapy do not or will not outweigh its costs.

Our genetically modified and non-modified T Cell and NK cell CAR-T product candidates are supported by limited clinical data, all of which has been generated through trials conducted by MD Anderson, not by us. We plan to assume control of the overall clinical and regulatory development of our T cell and NK cell product candidates, and any failure to obtain, or delays in obtaining, sponsorship of investigational new drug applications, or INDs, or in filing new INDs sponsored by us for these or any other product candidates we determine to advance could negatively affect the timing of our potential future clinical trials. Such an impact on timing could increase research and development costs and could delay or prevent obtaining regulatory approval for our product candidates, either of which could have a material adverse effect on our business. Further, we did not control the design or conduct of the previous trials. It is possible that the FDA will not accept these previous trials as providing adequate support for future clinical trials, whether controlled by us or third parties, for any of one or more reasons, including the safety, purity, and potency of the product candidate, the degree of product characterization, elements of the design or execution of the previous trials or safety concerns, or other trial results. We may also be subject to liabilities arising from any treatment-related injuries or adverse effects in patients enrolled in these previous trials. As a result, we may be subject to unforeseen third-party claims and delays in our potential future clinical trials. We may also be required to repeat in whole or in part clinical trials previously conducted by MD Anderson or other entities, which will be expensive and delay the submission and licensure or other regulatory approvals with respect to any of our product candidates.

In addition, the results of the limited clinical trials conducted by MD Anderson to date may not be replicated in future clinical trials. Our genetically modified and non-modified T cell and NK cell product candidates, as well as other product candidates may fail to show the desired safety and efficacy in clinical development and we cannot assure you that the results of any future trials will demonstrate the value and efficacy of our product candidates. Moreover, there are a number of regulatory requirements that we must satisfy before we can continue clinical trials of CAR-T or other cellular therapy product candidates in the United States. Satisfaction of these requirements will entail substantial time, effort and financial resources. Any time, effort and financial resources we expend on our genetically modified and non-modified T cell and NK cell product candidates and other early-stage product candidate development programs may adversely affect our ability to continue development and commercialization of our synthetic immuno-oncology product candidates.

The biopharmaceutical industry, and the rapidly evolving market for developing genetically engineered T cells in particular, is characterized by intense competition and rapid innovation. Genetically engineering T cells faces significant competition in the CAR and TCR technology space from multiple companies and their collaborators, such as Novartis/University of Pennsylvania, Bluebird bio/Celgene/Baylor College of Medicine, Kite Pharma/National Cancer Institute, Juno Therapeutics/Fred Hutchinson Cancer Research Center/Memorial Sloan-Kettering Cancer Center/Seattle Children’s Research Institute, Cellectis/Pfizer, Adaptimmune/GSK, Celgene, and NantKwest. We face competition from non-cell based treatments offered by other companies such as Amgen, AstraZeneca, Bristol-Myers, Incyte, Merck, and Roche. Even if we obtain regulatory approval of potential products, we may not be the first to market and that may affect the price or demand for our potential products. Additionally, the availability and price of our competitors’ products could limit the demand and the price we are able to charge for our potential products. We may not be able to implement our business plan if the acceptance of our potential products is inhibited by price competition or the reluctance of physicians to switch from existing methods of treatment to our potential products, or if physicians switch to other new drug or biologic products or

choose to reserve our potential products. Additionally, a competitor could obtain orphan product exclusivity from the FDA with respect to such competitor's product. If such competitor product is determined to be the same product as one of our potential products, that may prevent us from obtaining approval from the FDA for such potential products for the same indication for seven years, except in limited circumstances.

We are dependent on patents, know-how, and proprietary technology that are licensed from others, particularly MD Anderson and Intrexon. Any termination of these licenses could result in the loss of significant rights and could harm our ability to commercialize our product candidates. Disputes may also arise between us and these licensors regarding intellectual property subject to a license agreement, including those relating to:

- the scope of rights granted under the applicable license agreement and other interpretation-related issues;
- whether and the extent to which our technology and processes, and the technology and processes of Intrexon, MD Anderson and our other licensors, infringe on intellectual property of the licensor that is not subject to the applicable license agreement;
- our right to sublicense patent and other rights to third parties pursuant to our relationships with our licensors and partners;
- whether we and/or Intrexon are complying with our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our potential products under the MD Anderson License with MD Anderson; and
- the allocation of ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and by us.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements, particularly with MD Anderson, on acceptable terms, we may be unable to successfully develop and commercialize the affected potential products. We are generally also subject to all of the same risks with respect to protection of intellectual property that we license as we are for intellectual property that we own. If we or our licensors fail to adequately protect this intellectual property, our ability to commercialize potential products under our applicable licenses could suffer.

There is a substantial amount of litigation involving patents and other intellectual property rights in the biotechnology and pharmaceutical industries, as well as administrative proceedings for challenging patents, including interference, derivation, and reexamination proceedings before the United States Patent and Trademark Office, or U.S. PTO, or oppositions and other comparable proceedings in foreign jurisdictions. Recently, due to changes in U.S. law referred to as patent reform, new procedures including inter partes review and post-grant review have been implemented, which adds uncertainty to the possibility of challenge to our or our licensors' patents in the future.

We will require additional financial resources in order to continue ongoing development of our product candidates; if we are unable to obtain these additional resources, we may be forced to delay or discontinue clinical testing of our product candidates.

We have not generated significant revenue and have incurred significant net losses in each year since our inception. For the year ended December 31, 2015, we had a net loss of $120.1 million, and, as of December 31, 2015, we have incurred approximately $492.7 million of cumulative net losses since our inception in 2003. We expect to continue to incur significant operating expenditures and net losses. Further development of our product candidates, including product candidates that we may develop under our Channel Agreement with Intrexon, pursuant to the MD Anderson License or pursuant to the Ares Trading Agreement, will likely require substantial increases in our expenses as we:

- Continue to undertake clinical trials for product candidates;
- Scale-up the formulation and manufacturing of our product candidates;

- Seek regulatory approvals for product candidates;
- work with regulatory authorities to identify and address program related inquiries;
- Implement additional internal systems and infrastructure;
- Hire additional personnel;
- Begin to advance candidates pursuant to the MD Anderson License; and
- Commence providing funding for certain research and development activities of MD Anderson pursuant to the terms of the License.

We continue to seek additional financial resources to fund the further development of our product candidates. If we are unable to obtain sufficient additional capital, one or more of these programs could be placed on hold. Because we are currently devoting a significant portion of our resources to the development of synthetic immuno-oncology, further progress with the development of our other candidates may be significantly delayed and may depend on the licensing of those compounds to third parties.

As of December 31, 2015, we have approximately $140.7 million of cash and cash equivalents. Given our current development plans, we anticipate current cash resources will be sufficient to fund our operations into the fourth quarter of 2017 and we have no current committed sources of additional capital. We do not know whether additional financing will be available on terms favorable or acceptable to us when needed, if at all. Our business is highly cash-intensive and our ability to continue operations after our current cash resources are exhausted depends on our ability to obtain additional financing and/or achieve profitable operations, as to which no assurances can be given. If adequate additional funds are not available when required, or if we are unsuccessful in entering into partnership agreements for the further development of our products, we will be required to delay, reduce or eliminate planned preclinical and clinical trials and may be forced to terminate the approval process for our product candidates from the FDA or other regulatory authorities. In addition, we could be forced to discontinue product development, forego attractive business opportunities or pursue merger or divestiture strategies. In the event we are unable to obtain additional financing, we may be forced to cease operations altogether.

We need to raise additional capital to fund our operations. The manner in which we raise any additional funds may affect the value of your investment in our common stock.

As of December 31, 2015, we had incurred approximately $492.7 million of cumulative net losses and had approximately $140.7 million of cash and cash equivalents. Given our current development plans, we anticipate that our current cash resources will be sufficient to fund our operations into the fourth quarter of 2017. However, changes may occur that would consume our existing capital prior to then, including expansion of the scope of, and/or slower than expected progress of, our research and development efforts and changes in governmental regulation. Actual costs may ultimately vary from our current expectations, which could materially impact our use of capital and our forecast of the period of time through which our financial resources will be adequate to support our operations. Also our estimates include the advancement of our synthetic immuno-oncology product candidates in the clinic under our Channel Agreement with Intrexon and our increased expenses as we begin to advance candidates pursuant to the MD Anderson License with MD Anderson and commence providing funding for certain research and development activities of MD Anderson pursuant to the terms of the MD Anderson License, and we expect that the costs associated with these and additional product candidates will increase the level of our overall research and development expenses significantly going forward.

In addition to above factors, our actual cash requirements may vary materially from our current expectations for a number of other factors that may include, but are not limited to, changes in the focus and direction of our development programs, competitive and technical advances, costs associated with the development of our product candidates, our ability to secure partnering arrangements, and costs of filing, prosecuting, defending and enforcing our intellectual property rights. If we exhaust our capital reserves more quickly than anticipated,

regardless of the reason, and we are unable to obtain additional financing on terms acceptable to us or at all, we will be unable to proceed with development of some or all of our product candidates on expected timelines and will be forced to prioritize among them.

The unpredictability of the capital markets may severely hinder our ability to raise capital within the time periods needed or on terms we consider acceptable, if at all. Moreover, if we fail to advance one or more of our current product candidates to later-stage clinical trials, successfully commercialize one or more of our product candidates, or acquire new product candidates for development, we may have difficulty attracting investors that might otherwise be a source of additional financing.

Our need for additional capital and limited capital resources may force us to accept financing terms that could be significantly dilutive to existing stockholders. To the extent that we raise additional capital by issuing equity securities, our stockholders may experience dilution. In addition, we may grant future investors rights superior to those of our existing stockholders. If we raise additional funds through collaborations and licensing arrangements, it may be necessary to relinquish some rights to our technologies, product candidates or products, or grant licenses on terms that are not favorable to us. If we raise additional funds by incurring debt, we could incur significant interest expense and become subject to covenants in the related transaction documentation that could affect the manner in which we conduct our business.

Clinical trials are very expensive, time-consuming, and difficult to design, initiate and implement.

Human clinical trials are very expensive and difficult to design, initiate and implement, in part because they are subject to rigorous regulatory requirements. The clinical trial start up and process itself is also time-consuming and results are inherently uncertain. We estimate that clinical trials of our product candidates will take at least several years to complete. Furthermore, failure can occur at any stage of the trials, and we could encounter problems that cause us to delay the start of, abandon or repeat clinical trials. The commencement and completion of clinical trials may be delayed by several factors, including:

- Additional nonclinical data requests by regulatory agencies;
- Unforeseen safety issues;
- Determination of dosing issues;
- Lack of effectiveness during clinical trials;
- Slower than expected rates of patient recruitment and enrollment;
- Inability to monitor patients adequately during or after treatment;
- Inability or unwillingness of medical investigators to follow our clinical protocols; and
- Regulatory determinations to temporarily or permanently cease enrollment for other reasons not related to patient safety.

Success in preclinical testing and early clinical trials does not ensure that later clinical trials will be successful. In addition, we or the FDA may suspend our clinical trials at any time if it appears that we are exposing participants to unacceptable health risks or if the FDA finds deficiencies in our Investigational New Drug, or IND, submission or in the conduct of these trials.

‘See also “Risks Relating to the Clinical Testing, Regulatory Approval and Manufacturing of our Product Candidates— *Our product candidates are in various stages of clinical trials, which are very expensive and time-consuming. We cannot be certain when we will be able to submit an NDA or BLA, to the FDA and any failure or delay in completing clinical trials for our product candidates could harm our business* .”

We may not be able to obtain or maintain orphan drug exclusivity for our product candidates.

We have received Orphan Drug designations for Ad-RTS-IL-12 + veledimex for the treatment of malignant glioma in both the United States and Europe, and we may be able to receive additional Orphan Drug designation from the FDA and the European Medicines Agency, or EMA, for other product candidates. In the United States, orphan designation is available to drugs intended to treat, diagnose or prevent a rare disease or condition that affects fewer than 200,000 people in the United States at the time of application for orphan designation. Orphan designation qualifies the sponsor of the product for a tax credit and marketing incentives. The first sponsor to receive FDA marketing approval for a drug with an orphan designation is entitled to a seven-year exclusive marketing period in the United States for that product for that indication and, typically, a waiver of the prescription drug user fee for its marketing application. However, a drug that the FDA considers to be clinically superior to, or different from, the approved orphan drug, even though for the same indication, may also obtain approval in the United States during the seven-year exclusive marketing period. Orphan drug exclusive marketing rights may also be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug. There is no guarantee that any of our other product candidates will receive Orphan Drug designation or that, even if such product candidate is granted such status, the product candidate's clinical development and regulatory approval process will not be delayed or will be successful.

We may not be able to commercialize any products, generate significant revenues, or attain profitability.

To date, none of our product candidates have been approved for commercial sale in any country. The process to develop, obtain regulatory approval for, and commercialize potential drug candidates is long, complex, and costly. Unless and until we receive approval from the FDA and/or other regulatory authorities for our product candidates, we cannot sell our drugs and will not have product revenues. Even if we obtain regulatory approval for one or more of our product candidates, if we are unable to successfully commercialize our products, we may not be able to generate sufficient revenues to achieve or maintain profitability, or to continue our business without raising significant additional capital, which may not be available. Our failure to achieve or maintain profitability could negatively impact the trading price of our common stock.

Ethical, legal and social concerns about synthetic biologically engineered products could limit or prevent the use of our product candidates.

Our products candidates use a synthetic immuno-oncology platform. Public perception about the safety and environmental hazards of, and ethical concerns over, genetically engineered products could influence public acceptance of our product candidates. If we and our collaborators are not able to overcome the ethical, legal and social concerns relating to synthetic biological engineering, our product candidates may not be accepted. These concerns could result in increased expenses, regulatory scrutiny, delays or other impediments to the public acceptance and commercialization of our product candidates. Our ability to develop and commercialize products could be limited by public attitudes and governmental regulation.

The subject of genetically modified organisms has received negative publicity, which has aroused public debate. This adverse publicity could lead to greater regulation and trade restrictions on the development and commercialization of genetically altered products. Further, there is a risk that our product candidates could cause adverse health effects or other adverse events, which could also lead to negative publicity.

The synthetic biological platform that we use may have significantly enhanced characteristics compared to those found in naturally occurring organisms, enzymes or microbes. While we believe we produce synthetic biological technologies only for use in a controlled laboratory and industrial environment, the release of such synthetic biological technologies into uncontrolled environments could have unintended consequences. Any adverse effect resulting from such a release could have a material adverse effect on our business and financial condition, and we may have exposure to liability for any resulting harm.

Our use of synthetic immuno-oncology to develop product candidates may become subject to increasing regulation in the future.

Most of the laws and regulations concerning synthetic immuno-oncology relate to the end products produced using synthetic biology, but that may change. For example, the Presidential Commission for the Study of Bioethical Issues recommended in December 2010 that the federal government oversee, but not regulate, synthetic biology research. The Presidential Commission also recommended that the government lead an ongoing review of developments in the synthetic biology field and that the government conduct a reasonable risk assessment before the field release of synthetic organisms. Other findings and recommendations have been published by the Presidential Commission through 2014. Synthetic immuno-oncology may become subject to additional government regulations as a result of the recommendations, which could require us to incur significant additional capital and operating expenditures and other costs in complying with these laws and regulations.

The technology on which our Channel Agreements with Intrexon Corporation are based in part on early stage technology in the field of human oncologic and autoimmune therapeutics.

Our Channel Agreements with Intrexon contemplate our use of Intrexon's advanced transgene engineering platform for the controlled and precise cellular production of anti-cancer effectors and for the development of therapeutic approaches for GvHD. The synthetic immuno-oncology effector platform in which we have acquired rights represents early-stage technology in the field of human oncology biotherapeutic, with DC-RTS-IL-12 + veledimex having completed a Phase 1 study in melanoma and Ad-RTS-IL-12 + veledimex having completed two Phase 2 studies, in melanoma and breast cancer. We are continuing to pursue intratumoral injection of Ad-RTS-IL-12 + veledimex in brain cancer and breast cancer. Although we plan to leverage Intrexon's synthetic immuno-oncology platform for additional products targeting key pathways used by cancers to grow and metastasize, we may not be successful in developing and commercializing these products for a variety of reasons. The risk factors set forth herein that apply to our small molecule drug candidates, which are in various stages of development, also apply to product candidates that we seek to develop under our Channel Agreement with Intrexon.

We will incur additional expenses in connection with our Channel Agreements with Intrexon Corporation.

The synthetic immuno-oncology platform, in which we have acquired rights for cancer indications and for the development of therapeutic approaches for GvHD from Intrexon, includes two existing product candidates, Ad-RTS-IL-12+ veledimex and DC-RTS-IL-12 + veledimex. Upon entry into the Channel Agreements with Intrexon, we assumed responsibility for the clinical development of these product candidates, which we expect will increase the level of our overall research and development expenses significantly going forward. Although all human clinical trials are expensive and difficult to design and implement, we believe that due to complexity, costs associated with clinical trials for synthetic immuno-oncology products are greater than the corresponding costs associated with clinical trials for small molecule candidates. In addition to increased research and development costs, prior to the adoption of our April 2013 workforce reduction plan, we added headcount in part to support our Channel Agreement endeavors, and we may need to do so again in the future which would add to our general and administrative expenses going forward.

Although our forecasts for expenses and the sufficiency of our capital resources takes into account our plans to develop the Intrexon products, the actual costs associated therewith may be significantly in excess of forecasted amounts. In addition to the amount and timing of expenses related to the clinical trials, our actual cash requirements may vary materially from our current expectations for a number of other factors that may include, but are not limited to, changes in the focus and direction of our development programs, competitive and technical advances, costs associated with the development of our product candidates and costs of filing, prosecuting, defending and enforcing our intellectual property rights. If we exhaust our capital reserves more quickly than anticipated, regardless of the reason, and we are unable to obtain additional financing on terms acceptable to us or at all, we will be unable to proceed with development of some or all of our product candidates on expected timelines and will be forced to prioritize among them.

We may not be able to retain the exclusive rights licensed to us by Intrexon Corporation to develop and commercialize products involving DNA administered to humans for expression of anti-cancer effectors for the purpose of treatment or prophylaxis of cancer.

Under the Channel Agreement, we use Intrexon's technology directed towards in vivo expression of effectors in connection with the development of Ad-RTS-IL-12+ veledimex and DC-RTS-IL-12 + veledimex and generally to research, develop and commercialize products, in each case in which DNA is administered to humans for expression of anti-cancer effectors for the purpose of treatment or prophylaxis of cancer, which we collectively refer to as the Cancer Program. The Channel Agreement grants us a worldwide license to use patents and other intellectual property of Intrexon in connection with the research, development, use, importing, manufacture, sale, and offer for sale of products involving DNA administered to humans for expression of anti-cancer effectors for the purpose of treatment or prophylaxis of cancer, which we refer to collectively as the ZIOPHARM Products. Such license is exclusive with respect to any clinical development, selling, offering for sale or other commercialization of ZIOPHARM Products, and otherwise is non-exclusive. Subject to limited exceptions, we may not sublicense the rights described without Intrexon's written consent. Under the Channel Agreement, and subject to certain exceptions, we are responsible for, among other things, the performance of the Cancer Program, including development, commercialization and certain aspects of manufacturing of ZIOPHARM Products.

Intrexon may terminate the Channel Agreement if we fail to use diligent efforts to develop and commercialize ZIOPHARM Products or if we elect not to pursue the development of a Cancer Program identified by Intrexon that is a "Superior Therapy" as defined in the Channel Agreement. We may voluntarily terminate the Channel Agreement upon 90 days written notice to Intrexon.

Our obligation to pay 50% of net profits or revenue as described further in our Annual Report on Form 10-K under the heading " *Business—License Agreements, Intellectual Property and Other Agreements—Exclusive Channel Partner Agreement with Intrexon Corporation* " with respect to these "retained" products will survive termination of the Channel Agreement.

There can be no assurance that we will be able to successfully perform under the Channel Agreement and if the Channel Agreement is terminated it may prevent us from achieving our business objectives.

We will incur additional expenses in connection with our License Agreement with The University of Texas M.D. Anderson Cancer Center

Pursuant to the MD Anderson License with MD Anderson, we, together with Intrexon, obtained an exclusive, worldwide license to certain technologies owned and licensed by MD Anderson including technologies relating to novel CAR+ T cell, T-NK and TCR cell therapies arising from the laboratory of Laurence Cooper, M.D., Ph.D., who was then at MD Anderson, as well as either co-exclusive or non-exclusive licenses under certain related technologies. Pursuant to the MD Anderson License, MD Anderson agreed to transfer to us certain existing research programs described in the MD Anderson License and we, together with Intrexon, entered into a research and development agreement with MD Anderson pursuant to which we agreed to provide funding for certain research and development activities of MD Anderson for a period of three years from the date of the MD Anderson License, in an amount between $15 and $20 million per year. In addition, we also expect to enter into additional collaboration and technology transfer agreements with MD Anderson and Intrexon to accelerate technology and clinical development of these product candidates. We expect to increase the level of our overall research and development expenses significantly going forward as a result of each of these items.

Although our forecasts for expenses and the sufficiency of our capital resources takes into account our plans to develop the technology licensed from MD Anderson and our obligations under the MD Anderson License, the MD Anderson License is still only beginning to be implemented, therefore the actual costs associated therewith may be significantly in excess of forecasted amounts. In addition to the amount and timing of expenses related to our relationship with MD Anderson, our actual cash requirements may vary materially from our current

expectations for a number of other factors that may include, but are not limited to, changes in the focus and direction of our development programs, competitive and technical advances, costs associated with the development of our product candidates and costs of filing, prosecuting, defending and enforcing our intellectual property rights. If we exhaust our capital reserves more quickly than anticipated, regardless of the reason, and we are unable to obtain additional financing on terms acceptable to us or at all, we will be unable to proceed with development of some or all of our product candidates on expected timelines and will be forced to prioritize among them.

We may not be able to retain the rights licensed to us and Intrexon by The University of Texas M.D. Anderson Cancer Center to technologies relating to novel chimeric antigen receptor (CAR) T cell therapies and other related technologies.

Under the MD Anderson License, we, together with Intrexon, received an exclusive, worldwide license to certain technologies owned and licensed by MD Anderson including technologies relating to novel CAR+ T cell, T-NK and TCR cell therapies arising from the laboratory of Laurence Cooper, M.D., Ph.D., who was then at MD Anderson, as well as either co-exclusive or non-exclusive licenses under certain related technologies. When combined with Intrexon's technology suite and ZIOPHARM's clinically tested RheoSwitch Therapeutic System ® interleukin-12 modules, the resulting proprietary methods and technologies may help realize the promise of genetically modified CAR+ T cell and other immune cells by tightly controlling cell expansion and activation in the body, minimizing off-target and unwanted on-target effects and toxicity while maximizing therapeutic efficacy. The term of the MD Anderson License expires on the last to occur of (a) the expiration of all patents licensed thereunder, or (b) the twentieth anniversary of the date of the MD Anderson License; provided, however, that following the expiration of the term, the Company and Intrexon shall then have a fully-paid up, royalty free, perpetual, irrevocable and sublicensable license to use the licensed intellectual property thereunder.

After 10 years from the date of the MD Anderson License and subject to a 90 day cure period, MD Anderson will have the right to convert the MD Anderson License into a non-exclusive license if we and Intrexon are not using commercially reasonable efforts to commercialize the licensed intellectual property on a case-by-case basis. After five years from the date of the MD Anderson License and subject to a 180-day cure period, MD Anderson will have the right to terminate the MD Anderson License with respect to specific technology(ies) funded by the government or subject to a third party contract if we and Intrexon are not meeting the diligence requirements in such funding agreement or contract, as applicable. Subject to a 30-day cure period, MD Anderson has the right to terminate the MD Anderson License if we and Intrexon fail to timely deliver the shares due in consideration for the MD Anderson License. MD Anderson may also terminate the agreement with written notice upon material breach by us or Intrexon, if such breach has not been cured within 60 days of receiving such notice. In addition, the MD Anderson License will terminate upon the occurrence of certain insolvency events for both us or Intrexon and may be terminated by the mutual written agreement of us, Intrexon and MD Anderson.

There can be no assurance that we will be able to successfully perform under the MD Anderson License and if the MD Anderson License is terminated it may prevent us from achieving our business objectives.

We have a limited operating history upon which to base an investment decision.

We have not demonstrated an ability to perform the functions necessary for the successful commercialization of any product candidates. The successful commercialization of any product candidates will require us to perform a variety of functions, including:

- Continuing to undertake preclinical development and clinical trials;
- Participating in regulatory approval processes;
- Formulating and manufacturing products; and
- Conducting sales and marketing activities.

Our operations have been limited to organizing and staffing our company, acquiring, developing and securing our proprietary product candidates, and undertaking preclinical and clinical trials of our product candidates. These operations provide a limited basis for you to assess our ability to commercialize our product candidates and the advisability of investing in our securities.

Because we currently neither have nor intend to establish internal research capabilities, we are dependent upon pharmaceutical and biotechnology companies and academic and other researchers to sell or license us their product candidates and technology.

Proposing, negotiating, and implementing an economically viable product acquisition or license is a lengthy and complex process. We compete for partnering arrangements and license agreements with pharmaceutical, biopharmaceutical, and biotechnology companies, many of which have significantly more experience than we do, and have significantly more financial resources. Our competitors may have stronger relationships with certain third parties including academic research institutions, with whom we are interested in collaborating and may have, therefore, a competitive advantage in entering into partnering arrangements with those third parties. We may not be able to acquire rights to additional product candidates on terms that we find acceptable, or at all.

We expect that any product candidate to which we acquire rights will require significant additional development and other efforts prior to commercial sale, including extensive clinical testing and approval by the FDA and applicable foreign regulatory authorities. All drug product candidates are subject to the risks of failure inherent in pharmaceutical product development, including the possibility that the product candidate will not be shown to be sufficiently safe or effective for approval by regulatory authorities. Even if our product candidates are approved, they may not be economically manufactured or produced, or be successfully commercialized.

We actively evaluate additional product candidates to acquire for development. Such additional product candidates, if any, could significantly increase our capital requirements and place further strain on the time of our existing personnel, which may delay or otherwise adversely affect the development of our existing product candidates. We must manage our development efforts and clinical trials effectively, and hire, train and integrate additional management, administrative, and sales and marketing personnel. We may not be able to accomplish these tasks, and our failure to accomplish any of them could prevent us from successfully growing.

We may not be able to successfully manage our growth.

In the future, if we are able to advance our product candidates to the point of, and thereafter through, clinical trials, we will need to expand our development, regulatory, manufacturing, marketing and sales capabilities or contract with third parties to provide for these capabilities. Any future growth will place a significant strain on our management and on our administrative, operational, and financial resources. Therefore, our future financial performance and our ability to commercialize our product candidates and to compete effectively will depend, in part, on our ability to manage any future growth effectively. To manage this growth, we must expand our facilities, augment our operational, financial and management systems, and hire and train additional qualified personnel. If we are unable to manage our growth effectively, our business may be harmed.

Our business will subject us to the risk of liability claims associated with the use of hazardous materials and chemicals.

Our contract research and development activities may involve the controlled use of hazardous materials and chemicals. Although we believe that our safety procedures for using, storing, handling and disposing of these materials comply with federal, state and local laws and regulations, we cannot completely eliminate the risk of accidental injury or contamination from these materials. In the event of such an accident, we could be held liable for any resulting damages and any liability could have a materially adverse effect on our business, financial condition, and results of operations. In addition, the federal, state and local laws and regulations governing the use, manufacture, storage, handling and disposal of hazardous or radioactive materials and waste products may

require our contractors to incur substantial compliance costs that could materially adversely affect our business, financial condition, and results of operations.

We rely on key executive officers and scientific and medical advisors, and their knowledge of our business and technical expertise would be difficult to replace.

We are highly dependent on Dr. Laurence J.N. Cooper, our Chief Executive Officer, Caesar J. Belbel, our Chief Operating Officer, Executive Vice President and Chief Legal Officer and our principal scientific, regulatory, and medical advisors. Dr. Cooper's and Mr. Belbel's employment are governed by written employment agreements. Dr. Cooper and Mr. Belbel may terminate their employment with us at any time, subject, however, to certain non-compete and non-solicitation covenants. The loss of the technical knowledge and management and industry expertise of Dr. Cooper and Mr. Belbel, or any of our other key personnel, could result in delays in product development, loss of customers and sales, and diversion of management resources, which could adversely affect our operating results. We do not carry "key person" life insurance policies on any of our officers or key employees.

If we are unable to hire additional qualified personnel, our ability to grow our business may be harmed.

We will need to hire additional qualified personnel with expertise in preclinical and clinical research and testing, government regulation, formulation and manufacturing, and eventually, sales and marketing. We compete for qualified individuals with numerous biopharmaceutical companies, universities, and other research institutions. Competition for such individuals is intense and we cannot be certain that our search for such personnel will be successful. Attracting and retaining qualified personnel will be critical to our success. If we are unable to hire additional qualified personnel, our ability to grow our business may be harmed.

We may incur substantial liabilities and may be required to limit commercialization of our products in response to product liability lawsuits.

The testing and marketing of medical products entail an inherent risk of product liability. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our products, if approved. Even a successful defense would require significant financial and management resources. Regardless of the merit or eventual outcome, liability claims may result in:

- Decreased demand for our product candidates;
- Injury to our reputation;
- Withdrawal of clinical trial participants;
- Withdrawal of prior governmental approvals;
- Costs of related litigation;
- Substantial monetary awards to patients;
- Product recalls;
- Loss of revenue; and
- The inability to commercialize our product candidates.

We currently carry clinical trial insurance and product liability insurance. However, an inability to renew our policies or to obtain sufficient insurance at an acceptable cost could prevent or inhibit the commercialization of pharmaceutical products that we develop, alone or with collaborators.

Our business and operations would suffer in the event of system failures.

Despite the implementation of security measures, our internal computer systems and those of our current and future contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. While we are not aware of any such material system failure, accident or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our development programs and our business operations. For example, 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 to recover or reproduce the data. Likewise, we rely on third parties to manufacture our drug candidates and conduct clinical trials, and similar events relating to their computer systems could also have a material adverse effect on our business. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the further development and commercialization of our drug candidates could be delayed.

RISKS RELATED TO THE CLINICAL TESTING, REGULATORY APPROVAL AND MANUFACTURING OF OUR PRODUCT CANDIDATES

If we are unable to obtain the necessary U.S. or worldwide regulatory approvals to commercialize any product candidate, our business will suffer.

We may not be able to obtain the approvals necessary to commercialize our product candidates, or any product candidate that we may acquire or develop in the future for commercial sale. We will need FDA approval to commercialize our product candidates in the United States and approvals from regulatory authorities in foreign jurisdictions equivalent to the FDA to commercialize our product candidates in those jurisdictions. In order to obtain FDA approval of any product candidate, we must submit to the FDA a Biologics License Application, or BLA, demonstrating that the product candidate is safe for humans and effective for its intended use. This demonstration requires significant research and animal tests, which are referred to as preclinical studies, as well as human tests, which are referred to as clinical trials. Satisfaction of the FDA's regulatory requirements typically takes many years, depending upon the type, complexity, and novelty of the product candidate, and will require substantial resources for research, development, and testing. We cannot predict whether our research, development, and clinical approaches will result in drugs that the FDA will consider safe for humans and effective for their intended uses. The FDA has substantial discretion in the drug approval process and may require us to conduct additional preclinical and clinical testing or to perform post-marketing studies. The approval process may also be delayed by changes in government regulation, future legislation, or administrative action or changes in FDA policy that occur prior to or during our regulatory review. Delays in obtaining regulatory approvals may:

- Delay commercialization of, and our ability to derive product revenues from, our product candidates;
- Impose costly procedures on us; and
- Diminish any competitive advantages that we may otherwise enjoy.

Even if we comply with all FDA requests, the FDA may ultimately reject one or more of our NDAs or BLAs. We cannot be sure that we will ever obtain regulatory approval for any of our product candidates. Failure to obtain FDA approval for our product candidates will severely undermine our business by leaving us without a saleable product, and therefore without any potential revenue source, until another product candidate can be developed. There is no guarantee that we will ever be able to develop or acquire another product candidate or that we will obtain FDA approval if we are able to do so.

In foreign jurisdictions, we similarly must receive approval from applicable regulatory authorities before we can commercialize any drugs. Foreign regulatory approval processes generally include all of the risks associated with the FDA approval procedures described above.

Our product candidates are in various stages of clinical trials, which are very expensive and time-consuming. We cannot be certain when we will be able to submit a BLA to the FDA and any failure or delay in completing clinical trials for our product candidates could harm our business.

Our product candidates are in various stages of development and require extensive clinical testing. Notwithstanding our current clinical trial plans for each of our existing product candidates, we may not be able to commence additional trials or see results from these trials within our anticipated timelines. As such, we cannot predict with any certainty if or when we might submit a BLA for regulatory approval of our product candidates or whether such a BLA will be accepted. Because we do not anticipate generating revenues unless and until we submit one or more BLAs and thereafter obtain requisite FDA approvals, the timing of our BLA submissions and FDA determinations regarding approval thereof, will directly affect if and when we are able to generate revenues.

Our product candidates may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval, limit the commercial profile of an approved label, or result in significant negative consequences following any potential marketing approval.

As with many pharmaceutical and biological products, treatment with our product candidates may produce undesirable side effects or adverse reactions or events. If our product candidates or similar products or product candidates under development by third parties demonstrate unacceptable adverse events, we may be required to halt or delay further clinical development of our product candidates. The FDA, the EMA or other foreign regulatory authorities could order us to cease further development of or deny approval of our product candidates for any or all targeted indications. The product-related side effects could affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. Any of these occurrences may harm our business, financial condition and prospects significantly.

The results of our clinical trials may not support our product candidate claims.

Even if our clinical trials are completed as planned, we cannot be certain that their results will support approval of our product candidates. The FDA normally expects two randomized, well-controlled Phase 3 pivotal studies in support of approval of an NDA or BLA. Success in preclinical testing and early clinical trials does not ensure that later clinical trials will be successful, and we cannot be certain that the results of later clinical trials will replicate the results of prior clinical trials and preclinical testing. The clinical trial process may fail to demonstrate that our product candidates are safe for humans and effective for the indicated uses. This failure would cause us to abandon a product candidate and may delay development of other product candidates. Any delay in, or termination of, our clinical trials will delay the submission of our BLAs with the FDA and, ultimately, our ability to commercialize our product candidates and generate product revenues. In addition, our clinical trials involve small patient populations. Because of the small sample size, the results of these clinical trials may not be indicative of future results.

Our synthetic immuno-oncology product candidates are based on a novel technology, which makes it difficult to predict the time and cost of product candidate development and subsequently obtaining regulatory approval. Currently, no gene therapy products have been approved in the United States and only one product has been approved in Europe.

We have recently focused our product research and development efforts on our synthetic immuno-oncology product candidates under our Channel Agreement with Intrexon. These products, including Ad-RTS-IL-12+ veledimex, are based on gene therapy technology. Due to the novelty of this medical technology, there can be no assurance that any development problems we experience in the future related to our synthetic immuno-oncology platform will not cause significant delays or unanticipated costs, or that such development problems can be solved. We may also experience unanticipated problems or delays in expanding our manufacturing capacity or transferring our manufacturing process to commercial partners, which may prevent us from completing our clinical studies or commercializing our synthetic immuno-oncology product candidates on a timely or profitable basis, if at all.

In addition, the clinical study requirements of the FDA, the EMA and other regulatory agencies and the criteria these regulators use to determine the safety and efficacy of a product candidate vary substantially according to the type, complexity, novelty and intended use and market of the potential products. The regulatory approval process for novel product candidates such as ours can be more expensive and take longer than for other, better known or extensively studied pharmaceutical or other product candidates. Currently, only one gene therapy product, UniQure's Glybera, which received marketing authorization from the EMA in 2012, has been approved in Europe but has not yet been launched for commercial sale, which makes it difficult to determine how long it will take or how much it will cost to obtain regulatory approvals for our product candidates in either the United States or Europe. Approvals by the EMA may not be indicative of what the FDA may require for approval.

Regulatory requirements governing gene and cell therapy products have changed frequently and may continue to change in the future. For example, the FDA has established the Office of Cellular, Tissue and Gene Therapies within its Center for Biologics Evaluation and Research, or CBER, to consolidate the review of gene therapy and related products, and the Cellular, Tissue and Gene Therapies Advisory Committee to advise CBER on its review. Gene therapy clinical studies conducted at institutions that receive funding for recombinant DNA research from the U.S. National Institutes of Health, or the NIH, are also subject to review by the NIH Office of Biotechnology Activities' Recombinant DNA Advisory Committee, or the RAC. Although the FDA decides whether individual gene therapy protocols may proceed, the RAC review process can impede the initiation of a clinical trial, even if the FDA has reviewed the trial and approved its initiation. Conversely, the FDA can put an IND on clinical hold even if the RAC has provided a favorable review. For example, our planned Phase 1 clinical trial of Ad-RTS-IL-12 + veledimex, in subjects with recurrent or progressive high grade gliomas (brain cancer) received approval from the NIH RAC in December 2013, but the FDA requested additional nonclinical information prior to permitting clinical study initiation, which we are currently generating. Also, before a clinical trial can begin at an NIH-funded institution, that institution's institutional review board, or IRB, and its Institutional Biosafety Committee will have to review the proposed clinical trial to assess the safety of the trial. In addition, adverse developments in clinical trials of gene therapy products conducted by others may cause the FDA or other regulatory bodies to change the requirements for approval of any of our product candidates.

These regulatory review committees and advisory groups and the new guidelines they promulgate may lengthen the regulatory review process, require us to perform additional studies, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of these treatment candidates or lead to significant post-approval limitations or restrictions. As we advance our synthetic immuno-oncology product candidates, we will be required to consult with these regulatory and advisory groups, and comply with applicable guidelines. If we fail to do so, we may be required to delay or discontinue development of our product candidates. These additional processes may result in a review and approval process that is longer than we otherwise would have expected for oncology product candidates. Delay or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary to bring a potential product to market could decrease our ability to generate sufficient product revenue to maintain our business.

Because we are dependent upon clinical research institutions and other contractors for clinical testing and for research and development activities, the results of our clinical trials and such research activities are, to a certain extent, beyond our control.

We materially rely upon independent investigators and collaborators, such as universities and medical institutions, to conduct our preclinical and clinical trials under agreements with us. These collaborators are not our employees and we cannot control the amount or timing of resources that they devote to our programs. These investigators may not assign as great a priority to our programs or pursue them as diligently as we would if we were undertaking such programs ourselves. If outside collaborators fail to devote sufficient time and resources to our drug development programs, or if their performance is substandard, the approval of our FDA applications, if any, and our introduction of new products, if any, will be delayed. These collaborators may also have relationships with other commercial entities, some of whom may compete with us. If our collaborators assist our competitors to our detriment, our competitive position would be harmed.

Our reliance on third parties to formulate and manufacture our product candidates exposes us to a number of risks that may delay the development, regulatory approval and commercialization of our products or result in higher product costs.

We do not have experience in drug formulation or manufacturing of drugs or biologics and do not intend to establish our own manufacturing facilities. Although we will work closely with and rely upon Intrexon on the manufacturing and scale-up of Intrexon product candidates, we lack the resources and expertise to formulate or manufacture our own product candidates. We currently are contracting for the manufacture of our product candidates. We intend to contract with one or more manufacturers to manufacture, supply, store, and distribute drug supplies for our clinical trials. If a product candidate we develop or acquire in the future receives FDA approval, we will rely on one or more third-party contractors or Intrexon to manufacture our products. Our anticipated future reliance on a limited number of third-party manufacturers exposes us to the following risks:

- We may be unable to identify manufacturers on acceptable terms or at all because the number of potential manufacturers is limited and the FDA must approve any replacement contractor. This approval would require new testing and compliance inspections. In addition, a new manufacturer would have to be educated in, or develop substantially equivalent processes for, production of our products after receipt of FDA approval, if any.
- Our third-party manufacturers might be unable to formulate and manufacture our products in the volume and of the quality required to meet our clinical needs and commercial needs, if any.
- Our future contract manufacturers may not perform as agreed or may not remain in the contract manufacturing business for the time required to supply our clinical trials or to successfully produce, store, and distribute our products.
- Drug manufacturers are subject to ongoing periodic unannounced inspection by the FDA, the Drug Enforcement Administration and corresponding state and foreign agencies to ensure strict compliance with current good manufacturing practices, or cGMP, and other government regulations and corresponding foreign standards. We do not have control over third-party manufacturers' compliance with these regulations and standards.
- If any third-party manufacturer makes improvements in the manufacturing process for our products, we may not own, or may have to share, the intellectual property rights to the innovation.
- Our third-party manufacturers may not be able to comply with cGMP regulations or similar regulatory requirements outside the United States. Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including clinical holds, fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of drug candidates or products, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our products.

Each of these risks could delay our clinical trials, the approval, if any, of our product candidates by the FDA or the commercialization of our product candidates or result in higher costs or deprive us of potential product revenues

Any product candidate for which we obtain marketing approval could be subject to post-marketing restrictions or withdrawal from the market and we may be subject to penalties if we fail to comply with regulatory requirements or if we experience unanticipated problems with our products, when and if any of them are approved.

Any product candidate for which we obtain marketing approval, along with the manufacturing processes, post-approval clinical data, labeling, advertising and promotional activities for such product, will be subject to continual requirements of and review by the FDA and other regulatory authorities. These requirements include, among other things, submissions of safety and other post-marketing information and reports, registration and listing requirements, cGMP requirements relating to manufacturing, quality control, quality assurance and

corresponding maintenance of records and documents, requirements regarding the distribution of samples to physicians and recordkeeping. Even if marketing approval of a drug candidate is granted, the approval may be subject to limitations on the indicated uses for which the product may be marketed or to the conditions of approval, including the requirement to implement a risk evaluation and mitigation strategy, or REMS, which could include requirements for a restricted distribution system. If any of our product candidates receives marketing approval, the accompanying label may limit the approved uses, which could limit sales of the product.

The FDA may also impose requirements for costly post-marketing studies or clinical trials and surveillance to monitor the safety or efficacy of our approved products. The FDA closely regulates the post-approval marketing and promotion of products to ensure that they are marketed only for the approved indications and in accordance with the provisions of the approved labeling. The FDA imposes stringent restrictions on manufacturers' communications regarding off-label use and if we market our products outside of their approved indications, we may be subject to enforcement action for off-label marketing. Violations of the FDCA relating to the promotion of prescription drugs may lead to investigations alleging violations of federal and state health care fraud and abuse laws, as well as state consumer protection laws.

In addition, later discovery of previously unknown adverse events or other problems with our products, manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may yield various results, including:

- Litigation involving patients taking our product;
- Restrictions on such products, manufacturers or manufacturing processes;
- Restrictions on the labeling or marketing of a product;
- Restrictions on product distribution or use;
- Requirements to conduct post-marketing studies or clinical trials;
- Warning letters;
- Withdrawal of the products from the market;
- Refusal to approve pending applications or supplements to approved applications that we submit;
- Recall of products;
- Fines, restitution or disgorgement of profits or revenues;
- Suspension or withdrawal of marketing approvals;
- Damage to relationships with existing and potential collaborators;
- Unfavorable press coverage and damage to our reputation;
- Refusal to permit the import or export of our products;
- Product seizure; or
- Injunctions or the imposition of civil or criminal penalties.

Noncompliance with similar European Union requirements regarding safety monitoring or pharmacovigilance can also result in significant financial penalties. Similarly, failure to comply with U.S. and foreign regulatory requirements regarding the development of products for pediatric populations and the protection of personal health information can also lead to significant penalties and sanctions.

RISKS RELATED TO OUR ABILITY TO COMMERCIALIZE OUR PRODUCT CANDIDATES

If we are unable either to create sales, marketing and distribution capabilities or enter into agreements with third parties to perform these functions, we will be unable to commercialize our product candidates successfully.

We currently have no marketing, sales, or distribution capabilities. If and when we become reasonably certain that we will be able to commercialize our current or future product candidates, we anticipate allocating resources to the marketing, sales and distribution of our proposed products in North America and in certain other countries; however, we cannot assure that we will be able to market, sell, and distribute our products successfully. Our future success also may depend, in part, on our ability to enter into and maintain collaborative relationships for such capabilities and to encourage the collaborator's strategic interest in the products under development, and such collaborator's ability to successfully market and sell any such products. Although we intend to pursue certain collaborative arrangements regarding the sale and marketing of certain of our product candidates, there are no assurances that we will be able to establish or maintain collaborative arrangements or, if we are able to do so, whether we would be able to conduct our own sales efforts. There can also be no assurance that we will be able to establish or maintain relationships with third-party collaborators or develop in-house sales and distribution capabilities. To the extent that we depend on third parties for marketing and distribution, any revenues we receive will depend upon the efforts of such third parties, and there can be no assurance that such efforts will be successful. In addition, there can also be no assurance that we will be able to market and sell our product candidates in the United States or overseas.

If we are not able to partner with a third party and are not successful in recruiting sales and marketing personnel or in building a sales and marketing infrastructure, we will have difficulty commercializing our product candidates, which would harm our business. If we rely on pharmaceutical or biotechnology companies with established distribution systems to market our products, we will need to establish and maintain partnership arrangements, and we may not be able to enter into these arrangements on acceptable terms or at all. To the extent that we enter into co-promotion or other arrangements, any revenues we receive will depend upon the efforts of third parties that may not be successful and that will be only partially in our control.

If we cannot compete successfully for market share against other biopharmaceutical companies, we may not achieve sufficient product revenues and our business will suffer.

The market for our product candidates is characterized by intense competition and rapid technological advances. If a product candidate receives FDA approval, it will compete with a number of existing and future products and therapies developed, manufactured and marketed by others. Existing or future competing products may provide greater therapeutic convenience or clinical or other benefits for a specific indication than our products, or may offer comparable performance at a lower cost. If our products fail to capture and maintain market share, we may not achieve sufficient product revenues and our business will suffer.

We will compete against fully integrated pharmaceutical companies and smaller companies that are collaborating with larger pharmaceutical companies, academic institutions, government agencies and other public and private research organizations. Many of these competitors have products already approved or in development. In addition, many of these competitors, either alone or together with their collaborative partners, operate larger research and development programs or have substantially greater financial resources than we do, as well as significantly greater experience in:

- Developing drugs and biopharmaceuticals;
- Undertaking preclinical testing and human clinical trials;
- Obtaining FDA and other regulatory approvals of drugs and biopharmaceuticals;
- Formulating and manufacturing drugs and biopharmaceuticals; and
- Launching, marketing, and selling drugs and biopharmaceuticals.

Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that we may develop. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. In addition, our ability to compete may be affected in many cases by insurers or other third-party payors seeking to encourage the use of generic products.

If physicians and patients do not accept and use our product candidates, our ability to generate revenue from sales of our products will be materially impaired.

Even if the FDA and/or foreign equivalents thereof approve our product candidates, physicians and patients may not accept and use them. Acceptance and use of our products will depend upon a number of factors including:

- Perceptions by members of the healthcare community, including physicians, about the safety and effectiveness of our drugs;
- Pharmacological benefit and cost-effectiveness of our products relative to competing products;
- Availability of coverage and adequate reimbursement for our products from government or other healthcare payors;
- Effectiveness of marketing and distribution efforts by us and our licensees and distributors, if any; and
- The price at which we sell our products.

Because we expect sales of our current product candidates, if approved, to generate substantially all of our product revenues for the foreseeable future, the failure of a drug to find market acceptance would harm our business and could require us to seek additional financing in order to fund the development of future product candidates.

Our ability to generate product revenues will be diminished if our products do not obtain coverage or adequate reimbursement from payors.

Our ability to commercialize our product candidates, if approved, alone or with collaborators, will depend in part on the extent to which coverage and reimbursement will be available from government and health administration authorities, private health maintenance organizations and health insurers and other third-party payors.

Patients who are prescribed medicine for the treatment of their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their prescription drugs. Adequate coverage and reimbursement from governmental healthcare programs, such as Medicare and Medicaid, and commercial payors is critical to new product acceptance. Coverage decisions may depend upon clinical and economic standards that disfavor new drug products when more established or lower cost therapeutic alternatives are already available or subsequently become available. Even if we obtain coverage for our product candidates, the resulting reimbursement payment rates might not be adequate or may require co-payments that patients find unacceptably high. Patients are unlikely to use our product candidates unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost of our product candidates.

In addition, the market for our product candidates for which we may receive regulatory approval will depend significantly on access to third-party payors' drug formularies, or lists of medications for which third-party payors provide coverage and reimbursement, which might not include all of the FDA-approved drugs for a particular indication. The industry competition to be included in such formularies often leads to downward pricing pressures on pharmaceutical companies. Also, third-party payors may refuse to include a particular branded drug in their formularies or otherwise restrict patient access to a branded drug when a less costly generic equivalent or other alternative is available.

Third-party payors, whether foreign or domestic, or governmental or commercial, are developing increasingly sophisticated methods of controlling healthcare costs. In addition, in the United States, no uniform policy of coverage and reimbursement for drug products exists among third-party payors. Therefore, coverage and reimbursement for drug products can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that requires us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that approval will be obtained. If we are unable to obtain coverage of and adequate payment levels for our product candidates from third-party payors, physicians may limit how much or under what circumstances they will prescribe or administer them and patients may decline to purchase them. This in turn could affect our ability to successfully commercialize our products and impact our profitability, results of operations, financial condition, and future success.

In addition, in many foreign countries, particularly the countries of the European Union, the pricing of prescription drugs is subject to government control. In some non-U.S. jurisdictions, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing vary widely from country to country. For example, the EU 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. We may face competition for our product candidates from lower-priced products in foreign countries that have placed price controls on pharmaceutical products. In addition, there may be importation of foreign products that compete with our own products, which could negatively impact our profitability.

Healthcare legislative reform measures may have a material adverse effect on our business and results of operations.

In both the United States and certain foreign jurisdictions, there have been a number of legislative and regulatory enactments in recent years that change the healthcare system in ways that could impact our future ability to sell our product candidates profitably.

Furthermore, there have been and continue to be a number of initiatives at the federal and state level that seek to reduce healthcare costs. Most significantly, in March 2010, President Obama signed into law the Patient Protection and Affordable Health Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively the ACA, which includes measures that significantly change the way healthcare is financed by both governmental and private insurers. Among the provisions of the ACA of importance to the pharmaceutical industry are the following:

- An annual, nondeductible fee on any entity that manufactures or imports certain branded prescription drugs and biologic agents, apportioned among these entities according to their market share in certain government healthcare programs;
- An increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13% of the average manufacturer price for most branded and generic drugs, respectively;
- A new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer’s outpatient drugs to be covered under Medicare Part D;
- An extension of manufacturers’ Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;
- New methodologies by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected, and for drugs that are line extensions;

- Expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals with income at or below 133% of the Federal Poverty Level, thereby potentially increasing both the volume of sales and manufacturers' Medicaid rebate liability;
- Expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program;
- A new requirement to annually report drug samples that certain manufacturers and authorized distributors provide to physicians;
- Expansion of healthcare fraud and abuse laws, including the False Claims Act and the Anti-Kickback Statute, new government investigative powers, and enhanced penalties for noncompliance;
- A licensure framework for follow-on biologic products;
- A new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research;
- Creation of the Independent Payment Advisory Board which has authority to recommend certain changes to the Medicare program that could result in reduced payments for prescription drugs and those recommendations could have the effect of law even if Congress does not act on the recommendations; and
- Establishment of a Center for Medicare & Medicaid Innovation at the Centers for Medicare & Medicaid Services, or CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. For example, in August 2011, President Obama signed into law the Budget Control Act of 2011, which, among other things, created the Joint Select Committee on Deficit Reduction to recommend proposals in spending reductions to Congress. The Joint Select Committee on Deficit Reduction did not achieve its targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, triggering the legislation's automatic reductions to several government programs. These reductions include aggregate reductions to Medicare payments to providers of 2% per fiscal year, which went into effect on April 1, 2013, and, due to subsequent legislative amendments, will stay in effect through 2024 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, further 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. The full impact of these new laws, as well as laws and other reform and cost containment measures that may be proposed and adopted in the future, remains uncertain, but may result in additional reductions in Medicare and other healthcare funding, which could have a material adverse effect on our future customers and accordingly, our ability to generate revenue, attain profitability, or commercialize our products.

If we fail to comply with federal and state healthcare laws, including fraud and abuse and health information privacy and security laws, we could face substantial penalties and our business, results of operations, financial condition and prospects could be adversely affected.

As a pharmaceutical company, even though we do not and will not control referrals of healthcare services or bill directly to Medicare, Medicaid or other third-party payors, certain federal and state healthcare laws and regulations pertaining to fraud and abuse and patients' rights are and will be applicable to our business. For example, we could be subject to healthcare fraud and abuse and patient privacy regulation by both the federal government and the states in which we conduct our business. The laws that may affect our ability to operate include, among others:

- The federal Anti-Kickback Statute, which constrains our business activities, including our marketing practices, educational programs, pricing policies, and relationships with healthcare providers or other

entities, by prohibiting, among other things, soliciting, receiving, offering or paying remuneration, directly or indirectly, to induce, or in return for, either the referral of an individual or the purchase or recommendation of an item or service reimbursable under a federal healthcare program, such as the Medicare and Medicaid programs;

- Federal civil and criminal false claims laws and civil monetary penalty laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid, or other third-party payors that are false or fraudulent;
- The federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which created new federal criminal statutes that prohibit, among other things, executing 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 of 2009, or HITECH, and its implementing regulations, which imposes certain requirements relating to the privacy, security and transmission of individually identifiable health information;
- Requirements to report annually to CMS certain financial arrangements with physicians and teaching hospitals, as defined in the ACA and its implementing regulations, including reporting any "transfer of value" made or distributed to teaching hospitals, prescribers, and other healthcare providers and reporting any ownership and investment interests held by physicians and their immediate family members and applicable group purchasing organizations during the preceding calendar year; and
- State and foreign law equivalents of each of the above federal laws, such as anti-kickback and false claims laws which may apply to items or services reimbursed by any third-party payor, including commercial insurers; state laws that require pharmaceutical companies to comply with the industry's voluntary compliance guidelines and the applicable compliance guidance promulgated by the federal government that otherwise restricts certain payments that may be made to healthcare providers and entities; state laws that require drug manufacturers to report information related to payments and other transfer of value to physicians and other healthcare providers and entities; and state and foreign laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Because of the breadth of these laws and the narrowness of the statutory exceptions and safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws. In addition, recent health care reform legislation has further strengthened these laws. For example, the ACA, among other things, amends the intent requirement of the federal anti-kickback and certain criminal healthcare fraud statutes. A person or entity no longer needs to have actual knowledge of this statute or specific intent to violate it. 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.

To the extent that any of our product candidates is ultimately sold in a foreign country, we may be subject to similar foreign laws and regulations.

If we or our operations are found to be in violation of any of the laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including administrative, civil and criminal penalties, damages, fines, exclusion from participation in United States federal or state health care programs, such as Medicare and Medicaid, and the curtailment or restructuring of our operations any of which could materially adversely affect our ability to operate our business and our financial results. Although compliance programs can mitigate the risk of investigation and prosecution for violations of these laws, the risks cannot be entirely eliminated. 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. Moreover, achieving and sustaining compliance with applicable federal and state privacy, security and fraud laws may prove costly.

Our ability to use net operating loss carryforwards and research tax credits to reduce future tax payments may be limited or restricted.

We have generated significant net operating loss carryforwards, or NOLs, and research and development tax credits, or R&D credits, as a result of our incurrence of losses and our conduct of research activities since inception. We generally are able to carry NOLs and R&D credits forward to reduce our tax liability in future years. However, our ability to utilize the NOLs and R&D credits is subject to the rules of Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, or the Code, respectively. Those sections generally restrict the use of NOLs and R&D credits after an "ownership change." An ownership change occurs if, among other things, the stockholders (or specified groups of stockholders) who own or have owned, directly or indirectly, 5% or more of a corporation's common stock or are otherwise treated as 5% stockholders under Section 382 of the code and the United States Treasury Department regulations promulgated thereunder increase their aggregate percentage ownership of that corporation's stock by more than 50 percentage points over the lowest percentage of the stock owned by these stockholders over the applicable testing period. In the event of an ownership change, Section 382 imposes an annual limitation on the amount of taxable income a corporation may offset with NOL carry forwards and Section 383 imposes an annual limitation on the amount of tax a corporation may offset with business credit (including the R&D credit) carry forwards. Any unused annual limitation may be carried over to later years until the applicable expiration date for the respective NOL or R&D credit carry forwards. We may have experienced an "ownership change" within the meaning of Section 382 in the past and there can be no assurance that we have not experienced additional ownership changes, or that we will not experience an ownership change as a result of this offering. As a result, our NOLs and business (including the R&D credit) may be subject to limitations and we may be required to pay taxes earlier and in larger amounts than would be the case if our NOLs or R&D credits were freely usable.

Our synthetic immuno-oncology product candidates may face competition in the future from biosimilars.

With the enactment of the Biologics Price Competition and Innovation Act of 2009, or BPCIA, as part of the Patient Protection and ACA, an abbreviated pathway for the approval of follow-on biological products was created. The new abbreviated regulatory pathway establishes legal authority for the FDA to review and approve biosimilar biologics, including the possible designation of a biosimilar as "interchangeable" with an existing brand product. Under the BPCIA, an application for a biosimilar product cannot be approved by the FDA until 12 years after the original branded product was approved under a BLA. This data exclusivity does not prevent another company from developing a product that is highly similar to the original branded product, generating its own data and seeking approval. Data exclusivity only assures that another company cannot rely upon the data within the innovator's application to support the biosimilar product's approval.

In his proposed budget for fiscal year 2014, President Obama proposed to cut this 12-year period of exclusivity down to seven years. He also proposed to prohibit additional periods of exclusivity due to minor changes in product formulations, a practice often referred to as "evergreening." It is possible that Congress may take these or other measures to reduce or eliminate periods of exclusivity.

Although final implementation of the BPCIA is not yet complete, such FDA implementation could have a material adverse effect on the future commercial prospects for our product candidates.

RISKS RELATED TO OUR INTELLECTUAL PROPERTY

If we or our licensors fail to adequately protect or enforce our intellectual property rights or secure rights to patents of others, the value of our intellectual property rights would diminish and our ability to successfully commercialize our products may be impaired.

Our success, competitive position, and future revenues will depend in part on our ability and the abilities of our licensors to obtain and maintain patent protection for our products, methods, processes and other technologies, to preserve our trade secrets, to prevent third parties from infringing on our proprietary rights, and to operate without infringing the proprietary rights of third parties.

To date, we have exclusive rights to certain United States and foreign intellectual property with respect to our small molecule product candidates, with respect to the Intrexon technology, including the existing Intrexon product candidates and the GvHD program, and with respect to CAR-T, NK and TCR cell therapies arising from the laboratory of Laurence Cooper, M.D., Ph.D., who was then at MD Anderson. Under our Channel Agreement with Intrexon, Intrexon has the sole right to conduct and control the filings, prosecution and maintenance of the patents and patent applications licensed to us. Although under the agreement Intrexon has agreed to consider in good faith and consult with us regarding any comments we may have regarding these patents and patent applications, we cannot guarantee that our comments will be solicited or followed. Under the MD Anderson License, future filings and applications require the agreement of each of MD Anderson, Intrexon and us, and MD Anderson has the right to control the preparation and filing of additional patent applications unless the parties agree that we or Intrexon may prosecute the application directly. Although under the agreement MD Anderson has agreed to review and incorporate any reasonable comments that we or Intrexon may have regarding these patents and patent applications, we cannot guarantee that our comments will be solicited or followed. Without direct control of the channel program patents and patent applications, we are dependent on Intrexon or MD Anderson, as applicable, to keep us advised of prosecution, particularly in foreign jurisdictions where prosecution information may not be publicly available. We anticipate that we, Intrexon and MD Anderson will file additional patent applications both in the United States and in other countries. However, we cannot predict or guarantee:

- The degree and range of protection any patents will afford us against competitors, including whether third parties will find ways to invalidate or otherwise circumvent our patents;
- If and when patents will be issued;
- Whether or not others will obtain patents claiming subject matter related to or relevant to our product candidates; or
- Whether we will need to initiate litigation or administrative proceedings that may be costly whether we win or lose.

The patent prosecution process is expensive and time-consuming, and we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost, in a timely manner, or in all jurisdictions. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. Moreover, in some circumstances, we do 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. We may also require the cooperation of our licensors in order to enforce the licensed patent rights, and such cooperation may not be provided. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions and has in recent years been the subject of much litigation. In addition, the laws of foreign countries may not protect our rights to the same extent as the laws of the United States and we may fail to seek or obtain patent protection in all major markets. For example, European patent law restricts the patentability of methods of treatment of the human body more than United States law does. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all.

Changes in patent laws or in interpretations of patent laws in the United States and other countries may diminish the value of our intellectual property or narrow the scope of our patent protection. In September 2011, the Leahy-Smith America Invents Act, or the Leahy-Smith Act, was signed into law, resulting in a number of significant changes to United States patent law. These changes include provisions that affect the way patent applications will be prosecuted and may also affect patent litigation. In addition, the United States 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. This combination of events has

created uncertainty with respect to the value of patents, once obtained, and with regard to our ability to obtain patents in the future. As the U.S. PTO continues to implement the Leahy-Smith Act, and as the federal courts have the opportunity to interpret the Leahy-Smith Act, the laws and regulations governing patents, and the rules regarding patent procurement 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.

Certain technologies utilized in our research and development programs are already in the public domain. Moreover, a number of our competitors have developed technologies, filed patent applications or obtained patents on technologies, compositions and methods of use that are related to our business and may cover or conflict with our owned or licensed patent applications, technologies or product candidates. Such conflicts could limit the scope of the patents that we may be able to obtain or may result in the rejection of claims in our patent applications. Because patent applications in the United States and many foreign jurisdictions are typically not published until eighteen months after filing, or in some cases not at all, and because publications of discoveries in the scientific literature often lag behind actual discoveries, neither we nor our licensors can be certain that others have not filed or maintained patent applications for technology used by us or covered by our pending patent applications without our being aware of these applications. Therefore, we cannot know with certainty whether we were the first to make the inventions claimed in our owned patents or pending patent applications, or that we were the first to file for patent protection of such inventions, nor can we know whether those from whom we license patents were the first to make the inventions claimed or were the first to file. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Our 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. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection. In addition, our own earlier filed patents and applications or those of Intrexon may limit the scope of later patents we obtain or may result in the rejection of claims in our later filed patent applications. If third parties filed patent applications or obtained patents on technologies, compositions and methods of use that are related to our business and that cover or conflict with our owned or licensed patent applications, technologies or product candidates, we may be required to challenge such protection, terminate or modify our programs impacted by such protection or obtain licenses from such third parties, which might not be available on acceptable terms, or at all.

Even if our owned and licensed patent applications issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors from competing with us or otherwise provide us with any competitive advantage. Our competitors may be able to circumvent our owned or licensed patents by developing similar or alternative technologies or products in a non-infringing manner.

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

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

Our success also depends upon the skills, knowledge, and experience of our scientific and technical personnel, our consultants and advisors, as well as our licensors and contractors. To help protect our proprietary know-how and our inventions for which patents may be unobtainable or difficult to obtain, and to maintain our competitive position, we rely on trade secret protection and confidentiality agreements. To this end, it is our general policy to

require our employees, consultants, advisors, and contractors to enter into agreements that prohibit the disclosure of confidential information and, where applicable, require disclosure and assignment to us of the ideas, developments, discoveries, and inventions important to our business. These agreements may not provide adequate protection for our trade secrets, know-how or other proprietary information in the event of any unauthorized use or disclosure or the lawful development by others of such information. Moreover, we may not be able to obtain adequate remedies for any breaches of these agreements. Our trade secrets may also be obtained by third parties by other means, such as breaches of our physical or computer security systems. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States are less willing or unwilling to protect trade secrets. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent them, or those to whom they communicate it, from using that technology or information to compete with us. If any of our trade secrets, know-how or other proprietary information is disclosed, the value of our trade secrets, know-how and other proprietary rights would be significantly impaired and our business and competitive position would suffer.

Third-party claims of intellectual property infringement would require us to spend significant time and money and could prevent us from developing or commercializing our products.

In order to protect or enforce patent rights, we, or Intrexon, may initiate patent infringement litigation against third parties. Similarly, we may be sued by others for patent infringement. We also may become subject to proceedings conducted in the United States Patent and Trademark Office, including interference proceedings to determine the priority or derivation of inventions, or post-grant review, inter partes review, or reexamination proceedings reviewing the patentability of our patented claims. In addition, any foreign patents that are granted may become subject to opposition, nullity, or revocation proceedings in foreign jurisdictions having such proceedings. The defense and prosecution, if necessary, of intellectual property actions are costly and divert technical and management personnel away from their normal responsibilities.

Our commercial success depends upon our ability, and the ability of our collaborators, to develop, manufacture, market and sell our drug candidates without infringing the proprietary rights of third parties. There is considerable intellectual property litigation in the biotechnology and pharmaceutical industries. While no such litigation has been brought against us and we have not been held by any court to have infringed a third party's intellectual property rights, we cannot guarantee that our products or use of our products do not infringe third-party patents. It is also possible that we have failed to identify relevant third-party patents or applications. For example, applications filed before November 29, 2000 and certain applications filed after that date that will not be filed outside the United States remain confidential until patents issue. Patent applications in the United States and elsewhere are published approximately 18 months after the earliest filing, which is referred to as the priority date. Therefore, patent applications covering our products or technology could have been filed by others without our knowledge. Additionally, pending patent applications which have been published can, subject to certain limitations, be later amended in a manner that could cover our products or the use of our products.

Our research, development and commercialization activities, as well as any product candidates or products resulting from these activities, may infringe or be claimed to infringe patents or patent applications under which we do not hold licenses or other rights. Patents do not protect its owner from a claim of infringement of another owner's patent. Therefore, our patent position cannot and does not provide any assurance that we are not infringing the patent rights of another.

The patent landscape in the field of synthetic immuno-oncology, which we are pursuing under our Channel Agreement with Intrexon, is particularly complex. We are aware of numerous United States and foreign patents and pending patent applications of third parties that cover compositions, methods of use and methods of manufacture of synthetic immuno-oncology, including biotherapeutics involving the in vivo expression of human IL-12. In addition, there may be patents and patent applications in the field of which we are not aware. The technology we license from Intrexon is early-stage technology and we are just beginning the process of designing

and developing products using this technology. Although we will seek to avoid pursuing the development of products that may infringe any patent claims that we believe to be valid and enforceable, we may fail to do so. Moreover, given the breadth and number of claims in patents and pending patent applications in the field of synthetic immuno-oncology and the complexities and uncertainties associated with them, third parties may allege that we are infringing upon patent claims even if we do not believe such claims to be valid and enforceable.

If a claim for patent infringement is asserted, there can be no assurance that the resolution of the claim would permit us to continue marketing the relevant product on commercially reasonable terms, if at all. We may not have sufficient resources to bring these actions to a successful conclusion. If we do not successfully defend any infringement actions to which we become a party or are unable to have infringed patents declared invalid or unenforceable, we may have to pay substantial monetary damages, which can be tripled if the infringement is deemed willful, or be required to discontinue or significantly delay commercialization and development of the affected products.

Any legal action against us or our collaborators claiming damages and seeking to enjoin developmental or marketing activities relating to affected products could, in addition to subjecting us to potential liability for damages, require us or our collaborators to obtain licenses to continue to develop, manufacture, or market the affected products. Such a license may not be available to us on commercially reasonable terms, if at all.

An adverse determination in a proceeding involving our owned or licensed intellectual property may allow entry of generic substitutes for our products.

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 noncompliance with these requirements.

Periodic maintenance fees on any issued patent are due to be paid to the U.S. PTO and foreign patent agencies in several stages over the lifetime of the patent. The U.S. PTO 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. Noncompliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. In such an event, our competitors might be able to enter the market, which would have a material adverse effect on our business.

If we breach any of the agreements under which we license rights to products or technology from others, we could lose license rights that are material to our business or be subject to claims by our licensors.

We license rights to products and technology that are important to our business, and we expect to enter into additional licenses in the future. For instance, we have exclusively licensed patents and patent applications under our Channel Agreement, the ECP Agreement and the GvHD Agreement with Intrexon as well as under the MD Anderson License. Under these agreements, we are subject to a range of commercialization and development, sublicensing, royalty, patent prosecution and maintenance, insurance and other obligations.

Any failure by us to comply with any of these obligations or any other breach by us of our license agreements could give the licensor the right to terminate the license in whole, terminate the exclusive nature of the license or bring a claim against us for damages. Any such termination or claim could have a material adverse effect on our financial condition, results of operations, liquidity or business. Even if we contest any such termination or claim and are ultimately successful, such dispute could lead to delays in the development or commercialization of potential products and result in time-consuming and expensive litigation or arbitration. On termination we may be required to license to the licensor any related intellectual property that we developed.

In addition, in certain cases, the rights licensed to us are rights of a third party licensed to our licensor. In such instances, if our licensors do not comply with their obligations under such licenses, our rights under our license agreements with our licensor may be adversely affected.

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 were previously employed at universities or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. 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 these employees or we have used or disclosed 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.

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

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. Even if we are successful in prosecuting or defending against such claims, litigation could result in substantial costs and be a distraction to management

OTHER RISKS RELATED TO OUR COMPANY

Our stock price has been, and may continue to be, volatile.

The market price of our common stock has been highly volatile. The stock market from time to time experiences significant price and volume fluctuations unrelated to the operating performance of particular companies. In addition, factors such as fluctuations in our operating results, future sales of our common stock, announcements of the timing and amount of product sales, announcements of the status of development of our products, announcements of technological innovations or new therapeutic products by us or our competitors, announcements regarding collaborative agreements, laboratory or clinical trial results, government regulation, FDA determinations on the approval of a product candidate NDA submission, developments in patent or other proprietary rights, public concern as to the safety of drugs developed by us or others, changes in reimbursement policies, comments made by securities analysts and general market conditions may have a substantial effect on the market price of our common stock.

We are subject to Sarbanes-Oxley and the reporting requirements of federal securities laws, which can be expensive.

As a public reporting company, we are subject to the Sarbanes-Oxley Act of 2002, as well as to the information and reporting requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and other federal securities laws. As a result, we incur significant legal, accounting, and other expenses that we would not incur as a private company, including costs associated with our public company reporting requirements and corporate governance requirements. As an example of public reporting company requirements, we evaluate the effectiveness of disclosure controls and procedures and of our internal control over financing reporting in order to allow management to report on such controls. Sarbanes-Oxley generally requires that a public reporting company's independent registered public accounting firm attest to the effectiveness of the company's internal control over financial reporting as of the end of each fiscal year in the company's Annual Report on Form 10-K.

In addition, any updates to our finance and accounting systems, procedures and controls, which may be required as a result of our ongoing analysis of internal controls, or results of testing by our independent auditor, may require significant time and expense. As a company with limited accounting resources, a significant amount of management's time and attention has been and will continue to be diverted from our business to ensure compliance with these regulatory requirements. This diversion of management's time and attention may have a material adverse effect on our business, financial condition and results of operations.

Management is working to continuously monitor and improve internal controls and has set in place controls to mitigate the potential segregation of duties risk. In the event significant deficiencies or material weaknesses are identified in our internal control over financial reporting that we cannot remediate in a timely manner, or if we are unable to receive a positive attestation from our independent registered public accounting firm with respect to our internal controls over financial reporting, investors and others may lose confidence in the reliability of our financial statements and the trading price of our common stock and ability to obtain any necessary equity or debt financing could suffer. In addition, in the event that our independent registered public accounting firm is unable to rely on our internal controls over financial reporting in connection with its audit of our financial statements, and in the further event that it is unable to devise alternative procedures in order to satisfy itself as to the material accuracy of our financial statements and related disclosures, we may be unable to file our periodic reports with the United States Securities and Exchange Commission, or SEC. This would likely have an adverse effect on the trading price of our common stock and our ability to secure any necessary additional equity or debt financing, and could result in the delisting of our common stock from the NASDAQ Capital Market, which would severely limit the liquidity of our common stock.

Anti-takeover provisions in our charter documents and under Delaware law may make an acquisition of us, which may be beneficial to our stockholders, more difficult.

Provisions of our amended and restated certificate of incorporation and bylaws, as well as provisions of Delaware law, could make it more difficult for a third party to acquire us, even if doing so would benefit our stockholders. These provisions authorize the issuance of "blank check" preferred stock that could be issued by our board of directors to increase the number of outstanding shares and hinder a takeover attempt, and limit who may call a special meeting of stockholders. In addition, Section 203 of the Delaware General Corporation Law generally prohibits a publicly-held Delaware corporation from engaging in a business combination with a party that owns at least 15% of its common stock unless the business combination is approved by the company's board of directors before the person acquires the 15% ownership stake or later by its board of directors and two-thirds of its stockholders. Section 203 could have the effect of delaying, deferring or preventing a change in control that our stockholders might consider to be in their best interests.

In connection with our January 2011 issuance of shares of common stock to Intrexon in a private placement transaction, our board of directors waived the Section 203 prohibition with respect to a future business combination with Intrexon.

Because we do not expect to pay dividends, you will not realize any income from an investment in our common stock unless and until you sell your shares at profit.

We have never paid dividends on our capital stock and we do not anticipate that we will pay any dividends for the foreseeable future. Accordingly, any return on an investment in us will be realized, if at all, only when you sell shares of our common stock.

If securities and/or industry analysts fail to continue publishing research about our business, if they change their recommendations adversely or if our results of operations do not meet their expectations, 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. If one or more of these analysts cease coverage of our

company 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. In addition, it is likely that in some future period our operating results will be below the expectations of securities analysts or investors. If one or more of the analysts who cover us downgrade our stock, or if our results of operations do not meet their expectations, our stock price could decline.

Our stock price is volatile and may decline regardless of our operating performance, and you may not be able to resell your shares at or above the price at which you purchased such shares.

The market price for our common stock is volatile and may fluctuate significantly in response to a number of factors, most of which we cannot control, including:

- Price and volume fluctuations in the overall stock market;
- Market conditions or trends in our industry or the economy as a whole;
- Changes in operating performance and stock market valuations of other biopharmaceutical companies generally, or those that develop and commercialize cancer drugs in particular;
- The financial projections we may provide to the public, any changes in these projections or our failure to meet these projections;
- Changes in financial estimates or ratings by any securities analysts who follow our common stock, our failure to meet these estimates or failure of those analysts to initiate or maintain coverage of our common stock;
- The public's response to press releases or other public announcements by us or third parties, including our filings with the Securities Exchange Commission, or SEC, and announcements relating to product development, litigation and intellectual property impacting us or our business;
- The sustainability of an active trading market for our common stock;
- Future sales of our common stock by our executive officers, directors and significant stockholders;
- Announcements of mergers or acquisition transactions;
- Our inclusion or deletion from certain stock indices;
- Announcements of medical innovations or new products by our competitors;
- Announcements of changes in our senior management;
- Other events or factors, including those resulting from war, incidents of terrorism, natural disasters or responses to these events; and
- Changes in accounting principles.

In addition, the stock markets, and in particular the NASDAQ Capital Market, have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many biopharmaceutical companies. Stock prices of many biopharmaceutical companies have fluctuated in a manner unrelated or disproportionate to the operating performance of those companies. In the past, stockholders have instituted securities class action litigation following periods of market volatility. If we were involved in securities litigation, we could incur substantial costs and our resources and the attention of management could be diverted from our business.

Our principal stockholders, executive officers and directors have substantial control over the company, which may prevent you and other stockholders from influencing significant corporate decisions and may harm the market price of our common stock.

As of December 31, 2015, our executive officers, directors and holders of five percent or more of our outstanding common stock, beneficially owned, in the aggregate, 8.9% of our outstanding common stock. These stockholders

may have interests that conflict with our other stockholders and, if acting together, have the ability to influence the outcome of matters submitted to our stockholders for approval, including the election and removal of directors and any merger, consolidation or sale of all or substantially all of our assets. Accordingly, this concentration of ownership may harm the market price of our common stock by:

- Delaying, deferring or preventing a change in control;
- Impeding a merger, consolidation, takeover or other business combination involving us; or
- Discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of us

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our corporate office is located at One First Avenue, Parris Building #34, Navy Yard Plaza, Boston, Massachusetts 02129. The Boston office consists of three floors, occupying approximately twenty-one thousand square feet, which are leased pursuant to a lease agreement that expires in August 2021. On May 22, 2015, we subleased approximately five thousand square feet of previously vacant office space in our Boston office for approximately $105 thousand in total rent for the period of June 2015 through August 2016. On December 21, 2015, we renewed a portion of the lease for Boston office through August 31, 2021 for $427 thousand, annually. We believe that our existing facilities are adequate to meet our current needs.

We also maintain office space in New York, which is subject to a lease agreement that expires in October 2018. Under the terms of the lease, we lease approximately seven thousand square feet and are required to make rental payments at an average monthly rate of approximately $41 thousand through the remainder of the term of the lease. On October 17, 2013, the Company entered into a sublease agreement to lease approximately seven thousand square feet to a subtenant. Under the sublease agreement, the Company will receive sublease payments at an average monthly rate of approximately $28 thousand through the remainder of the term of the lease. In accordance with the sublease agreement, the subtenant provided the Company with a security deposit of an irrevocable standby letter of credit for approximately $167 thousand.

Item 3. Legal Proceedings

In the ordinary course of business, we may periodically become subject to legal proceedings and claims arising in connection with ongoing business activities. The results of litigation and claims cannot be predicted with certainty, and unfavorable resolutions are possible and could materially affect our results of operations, cash flows or financial position. In addition, regardless of the outcome, litigation could have an adverse impact on us because of defense costs, diversion of management resources and other factors.

There are no matters, as of December 31, 2015, that, in the opinion of management, might have a material adverse effect on our financial position, results of operation or cash flows.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholders Matters and Issuer Purchases of Equity Securities

Market for Common Stock

Our common stock trades on the NASDAQ Capital Market under the symbol "ZIOP." The following table sets forth the high and low sale prices for our common stock during each quarter within the two most recently completed fiscal years as reported by the NASDAQ Capital Market.

	2015		2014	
Quarter Ended	High	Low	High	Low
March 31	$14.00	$4.96	$5.42	$3.81
June 30	$12.50	$8.81	$4.80	$2.96
September 30	$13.96	$7.94	$4.01	$2.64
December 31	$14.57	$8.07	$5.07	$2.43

Record Holders

As of February 10, 2016, we had approximately 381 holders of record of our common stock, one of which was Cede & Co., a nominee for Depository Trust Company, or DTC. Shares of common stock that are held by financial institutions as nominees for beneficial owners are deposited into participant accounts at DTC, and are considered to be held of record by Cede & Co. as one stockholder. As of February 10, 2016, we had approximately 39,992 beneficial holders of our common stock.

Dividends

We have never declared or paid a cash dividend on our common stock and do not anticipate paying any cash dividends in the foreseeable future.

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

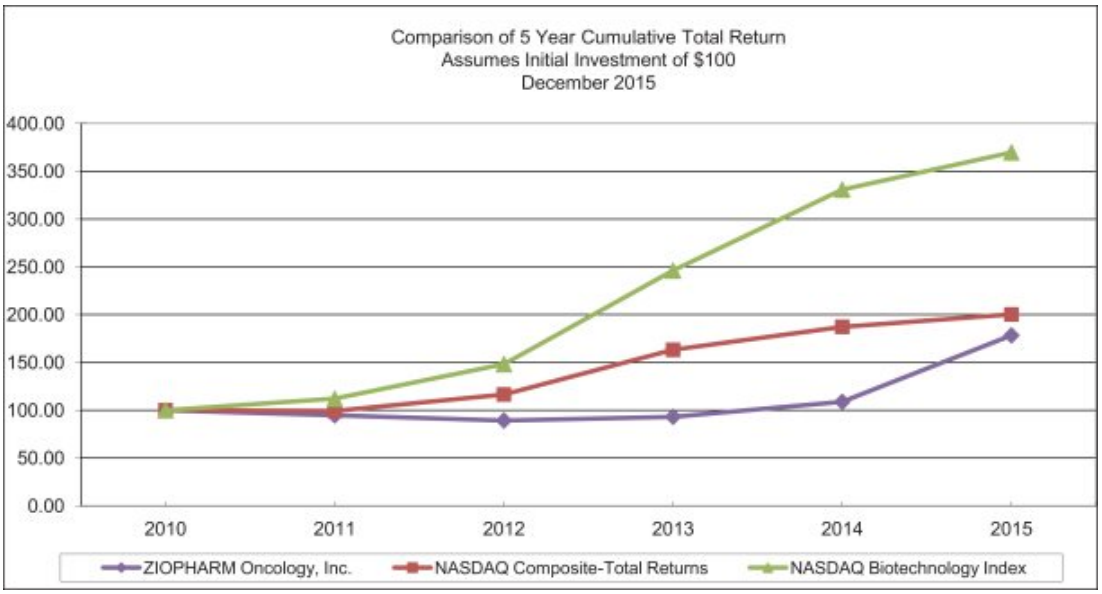
During the three months ended December 31, 2015, we purchased an aggregate of 16,709 shares of restricted stock from certain members of our board of directors to cover the applicable withholding taxes due from those directors for the shares of restricted stock at the time that the applicable forfeiture restrictions lapsed. The following table provides information about these purchases of restricted shares for the three months ended December 31, 2015:

Period	Total Number of Shares Purchased	Average Price Paid Per Share
October 1 to 31, 2015	—	$ —
November 1 to 30, 2015	—	—
December 1 to 31, 2015	16,709	8.31
Total	16,709	

Stockholder Return Comparison

The information included in this section is not deemed to be "soliciting material" or to be "filed" with the SEC or subject to Regulation 14A or 14C under the Exchange Act or to the liabilities of Section 18 of the Exchange Act, and will not be deemed to be incorporated by reference into any filing under the Securities Act or the Exchange Act, except to the extent we specifically incorporate it by reference into such a filing.

The graph below matches the cumulative 5-year total return of holders of our common stock with the cumulative total returns of the NASDAQ Composite index and the NASDAQ Biotechnology index. The graph assumes that the value of the investment in our common stock and in each of the indexes (including reinvestment of dividends) was $100 on December 31, 2010 and tracks it through December 31, 2015.



Item 6. Selected Financial Data

The selected financial data presented below has been derived from our financial statements. This data may not be indicative of our future financial condition or results of operations and should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and accompanying notes included elsewhere herein.

	Year Ended December 31, (in thousands, except share data and per share amounts)				
	2015	**2014**	**2013**	**2012**	**2011**
Statements of Operations Data:					
Research contract revenue	$ 4,332	$ 1,373	$ 800	$ 800	$ 667
Total operating expenses	124,432	44,872	58,513	102,969	72,067
Loss from operations	(120,100)	(43,499)	(57,713)	(102,169)	(71,400)
Other income (expense), net	12	(5)	(579)	(13)	39
Change in fair value of warrants	—	11,723	1,185	6,050	7,583
Net loss	(120,088)	(31,781)	(57,107)	(96,132)	(63,778)
Basic and diluted net loss per share	$ (0.96)	$ (0.31)	$ (0.66)	$ (1.22)	$ (0.97)
Weighted average number of common shares outstanding: basic and diluted	125,416,084	101,130,710	85,943,175	78,546,112	66,003,789

	Year Ended December 31, (in thousands)				
	2015	2014	2013	2012	2011
Balance Sheet Data:					
Cash and cash equivalents	$140,717	$42,803	$68,204	$73,306	$104,713
Total assets	153,724	45,237	71,754	83,404	108,108
Warrant liabilities	—	—	11,776	12,962	19,425
Total liabilities	66,353	11,396	22,371	34,959	36,501
Stockholders' equity	87,371	33,841	49,383	48,445	71,607

Item 7. Management Discussion and Analysis of Financial Condition and Results of Operations

The following "Management's Discussion and Analysis of Financial Condition and Results of Operations," as well as disclosures included under the heading "Business" and elsewhere in this Annual Report on Form 10-K, include "forward-looking statements" within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. All statements other than statements of historical fact we make in this Form 10-K are forward-looking. In particular, statements preceded by, followed by or that include the words "intends", "estimates", "plans", "believes", "expects", "anticipates", "should", "could" or similar expressions, are forward-looking statements. These statements include, but are not limited to, statements regarding future sales and operating results; growth and trends of our Company and our industry, generally; growth of the markets in which we participate; international events; product performance; the acquisition of or investment in other entities; the construction of new or refurbishment of existing facilities by us; our ability to successfully develop and commercialize our product candidates; our ability to expand our long-term business opportunities; financial projections and estimates and their underlying assumptions; and future performance. All of such statements are subject to certain risks and uncertainties, many of which are difficult to predict and generally beyond our control, that could cause actual results to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. Forward-looking statements reflect our current expectations and are inherently uncertain. Our actual results may differ significantly from our expectations. We assume no obligation to update this forward-looking information, except as required by law. The section herein entitled "Risk Factors" describes some, but not all, of the factors that could cause these differences. You should carefully read our sections titled "Special Note Regarding Forward-Looking Statements" and "Risk Factors" For further information.

The following discussion and analysis should be read in conjunction with our historical financial statements and the notes to those financial statements which are included in Item 8 of Part II of this Annual Report on Form 10-K.

Business Overview

ZIOPHARM Oncology, Inc. is a biopharmaceutical company seeking to acquire, develop and commercialize, on its own or with partners, a diverse portfolio of cancer therapies that address unmet medical needs through synthetic immuno-oncology. Pursuant to an exclusive channel partner agreement (or Channel Agreement) with Intrexon Corporation, or Intrexon, we obtained certain exclusive rights to Intrexon's synthetic immuno-oncology platform for use in the field of oncology, which included a clinical stage product candidate, Ad-RTS-IL-12 used with the oral activator veledimex. Ad-RTS-IL-12 + veledimex uses a gene delivery system to produce Interleukin-12, or IL-12, a potent, naturally occurring anti-cancer protein. The synthetic immuno-oncology platform is an industrialized engineering approach for molecular and cell biology and gene control. It employs an inducible gene-delivery system that enables controlled in vivo expression of genes that produce therapeutic proteins to treat cancer.

Recent Developments

We have completed two Phase 2 studies evaluating Ad-RTS-IL-12 + veledimex, the first for the treatment of metastatic melanoma, and the second for the treatment of metastatic breast cancer. We have announced the

initiation of a single-center Phase 1b/2 study following standard chemotherapy for the treatment of patients with locally advanced or metastatic breast cancer and the initiation of a multi-center Phase 1 study in patients with recurrent or progressive glioblastoma (GBM) or Grade III malignant glioma, a form of brain cancer. Patients have been enrolled in both of these studies and recruitment of additional patients is on-going. Early clinical data from the GBM trial was presented at the Society for Neuro-Oncology meeting in November 2015, and on February 24, 2016, we announced the successful completion of the initial dosing cohort and that the first patient has been dosed in the next succeeding cohort of the GBM study. An update is planned for the June 2016 meeting of the American Society of Clinical Oncology (ASCO) which will include data for patients enrolled. The Company also presented information about the ongoing breast cancer trial at the San Antonio Breast Cancer Symposium in December 2015. It is expected there will be an update of this trial at a scientific venue during 2016. In addition to Ad-RTS-IL-12 + veledimex as monotherapy, the Company has undertaken pre-clinical studies revealing that this viral-based immunotherapy can be combined with immune checkpoint inhibitors (iCPI) to improve the anti-tumor effect for GBM. These pre-clinical data have been submitted for publication at the American Society of Cell and Gene Therapy (ASGCT) in May 2016. These data support the first-in-human application of combining Ad-RTS-IL-12 + veledimex with an iCPI for investigational treatment of GBM which we expect to open in 2016.

In addition to our synthetic immuno-oncology programs, pursuant to our Channel Agreement, we, together with Intrexon, obtained an exclusive, worldwide license to certain immuno-oncology technologies owned and licensed by The University of Texas MD Anderson Cancer Center, or MD Anderson, including technologies relating to novel chimeric antigen receptors, or CARs, natural killer, or NK cells and T cell receptors, or TCRs. We plan to develop genetically modified T cells and other immune cells that will target and kill cancer cells. Control systems are also being developed using Intrexon's RheoSwitch Therapeutic System ® (RTS ®) for receptor expression as well as for the conditional ablation of genetically modified cells using a kill switch. We plan to leverage the synergy between the platforms to accelerate a synthetic immuno-oncology pipeline and programs for the development of allogeneic CAR-T and natural killer (NK) cells that can be used as off-the-shelf (OTS) therapies. During 2015, the Company was in the clinic in collaboration with MDACC with three CAR-T therapies all targeting CD19. One of these T cell trials, using second generation technology, will continue in 2016. The Company expects to enter the clinic with an additional CAR-T therapy for myeloid malignancies in 2016. Together with Intrexon, we have research programs evaluating additional CAR targets and CARs co-expressed with cytokines. In addition to developing T cells, the Company expects to enter the clinic in 2016 infusing OTS primary NK cells for investigational therapy of acute myelogenous leukemia (AML). The Company has additional interest in OTS products and is conducting a research program for the development of an allogenic CAR-T therapy in 2016. T cell specificity can be redirected not only through CARs, but also T cell receptors (TCRs) and the Company plans to initiate programs investigating T cells genetically modified to express TCR with preclinical studies planned for 2016. We plan to continue to combine Intrexon's technology suite with our capabilities to translate science to the patient, and to identify and develop additional products to stimulate or inhibit key pathways, including those used by the body's immune system, to treat cancer.

On March 27, 2015, we entered into a global collaboration with Intrexon focused exclusively on chimeric antigen receptor T cell, or CAR+ T, products with Ares Trading, or Ares, a biopharmaceutical division of Merck KGaA. Intrexon will share the economic provisions of this collaboration equally with us, including an upfront payment of $115.0 million received in July 2015, milestones and royalties. Under the collaboration Ares has selected two CAR+ T targets for which we will perform certain research activities that will, in part, be funded by Ares. Pursuant to the terms of the Exclusive Channel Partner Amendment, or ECP Amendment, we will be responsible for any additional research and development expenditures. Once these candidates reach investigational new drug stage, the programs will be transferred to Ares for clinical development and commercialization. We, together with Intrexon will also independently conduct research and development on other CAR-T candidates, with Ares Trading having the opportunity during clinical development to opt-in to these candidates for additional payments.

On September 28, 2015, the Company entered into a new Exclusive Channel Collaboration with Intrexon to develop treatments for graft-versus-host disease (GvHD), a major complication of allogeneic hematopoietic stem-cell transplantation (HSCT) which significantly impairs the quality of life and survival of many recipients. The collaboration will focus on addressing the underlying pathologies of GvHD through engineered cell platforms to express and deliver interleukin-2 (IL-2), a cytokine critical for modulation of the immune system. The Company believes that the combined expertise and knowledge gained from our research programs with Intrexon in adoptive T cell therapies and cytokine modulation for the treatment of cancer positions us well to develop and implement therapeutic approaches addressing an area of high unmet medical need for patients with GvHD. Through the GvHD Agreement, the companies plan to pursue engineered cell therapy strategies, used either separately or in combination, for targeted treatment of GvHD. The first approach is expected to utilize the infusion of regulatory T cells (Tregs) conditionally expressing IL-2 utilizing the RheoSwitch platform. The second approach is expected to utilize the deployment of orally-delivered microbe-based ActoBiotics ® therapeutics expressing IL-2 to modulate immune function.

Allogeneic HSCT is used for the treatment of various diseases including hematological malignancies, immunological deficiencies as well as non-malignant conditions. Approximately 40 to 60% of HSCT recipients develop GvHD, either acute or chronic, when immune (graft) cells in a transplant patient recognize their engrafted host as foreign and attack the patient's (host) cells. Immunosuppressive agents and systemic steroids routinely used to treat GvHD have limited efficacy and toxicity, defining the need for safer, more effective therapies. Human studies have shown that administration of low-dose subcutaneous IL-2 in patients with steroid-refractory GvHD acts via Tregs to ameliorate its manifestations.

Financial Overview

Overview of Results of Operations

Collaboration Revenue

We recognize research and development funding revenue over the estimated period of performance. We have not generated product revenues since our inception. Unless and until we receive approval from the FDA and/or other regulatory authorities for our product candidates, we cannot sell our products and will not have product revenues.

Research and Development Expenses

Our research and development expense consists primarily of salaries and related expenses for personnel, costs of contract manufacturing services, costs of facilities and equipment, fees paid to professional service providers in conjunction with our clinical trials, fees paid to contract research organizations in conjunction with preclinical animal studies, costs of materials used in research and development, consulting, license and milestone payments and sponsored research fees paid to third parties.

We have not accumulated and tracked our internal historical research and development costs or our personnel and personnel-related costs on a program-by-program basis. Our employee and infrastructure resources are allocated across several projects, and many of our costs are directed to broadly applicable research endeavors. As a result, we cannot state the costs incurred for each of our oncology programs on a program-by-program basis.

Our future research and development expenses in support of our current and future programs will be subject to numerous uncertainties in timing and cost to completion. We test potential products in numerous preclinical studies for safety, toxicology and efficacy. We may conduct multiple clinical trials for each product. As we obtain results from trials, we may elect to discontinue or delay clinical trials for certain products in order to focus our resources on more promising products or indications. Completion of clinical trials may take several years or more, and the length of time generally varies substantially according to the type, complexity, novelty and intended use of a product. It is not unusual for preclinical and clinical development of each of these types of products to require the expenditure of substantial resources.

We estimate that clinical trials of the type generally needed to secure new drug approval are typically completed over the following timelines:

Clinical Phase	Estimated Completion Period
Phase 1	1 - 2 years
Phase 2	2 - 3 years
Phase 3	2 - 4 years

The duration and the cost of clinical trials may vary significantly over the life of a project as a result of differences arising during clinical development, including, among others, the following:

- The number of clinical sites included in the trials;
- The length of time required to enroll suitable patents;
- The number of patients that ultimately participate in the trials;
- The duration of patient follow-up to ensure the absence of long-term product-related adverse events; and
- The efficacy and safety profile of the product.

As a result of the uncertainties discussed above, we are unable to determine the duration and completion costs of our programs or when and to what extent we will receive cash inflows from the commercialization and sale of a product. Our inability to complete our programs in a timely manner or our failure to enter into appropriate collaborative agreements could significantly increase our capital requirements and could adversely impact our liquidity. These uncertainties could force us to seek additional, external sources of financing from time-to-time in order to continue with our product development strategy. Our inability to raise additional capital, or to do so on terms reasonably acceptable to us, would jeopardize the future success of our business.

General and Administrative Expenses

General and administrative expenses consist primarily of salaries, benefits and stock-based compensation, consulting and professional fees, including patent related costs, general corporate costs and facility costs not otherwise included in research and development expenses or cost of product revenue.

Other Income (Expense)

Other income (expense) consists primarily of changes in the fair value of warrants.

Results of Operations for the fiscal year ended December 31, 2015 versus December 31, 2014

Collaboration Revenues Revenues for the years ended December 31, 2015 and 2014 were as follows:

	Year ended December 31,		Change	
($ in thousands)	**2015**	**2014**		
Collaboration revenue	$4,332	$1,373	$2,959	216%

Revenue for the year ended December 31, 2015 has increased in comparison to the year ended December 31, 2014. The increase resulted from revenue recognized from the Ares Trading Agreement in the amount of $3.2 million and from Predictive Therapeutics for $50 thousand for the twelve months ended December 31, 2015. The increase in revenue was offset by a decrease in revenue recognized from Solasia in the amount of $285 thousand for the twelve months ended December 31, 2015.

Deferred revenue of $54.8 million is comprised of $54.3 million from the Ares Trading Agreement which will be earned over the period of effort estimated to be 9 years, $272 thousand from the amended and restated Solasia

License and Collaboration Agreement which will be earned over the period of effort estimated to be over three months, and $200 thousand from Predictive Therapeutics which will be earned over the period of effort estimated to be six months.

Research and Development Expenses Research and development expenses during the years ended December 31, 2015 and 2014 were as follows:

	Year ended December 31,		Change	
($ in thousands)	**2015**	**2014**		
Research and development	$106,785	$32,706	$74,079	226%

Research and development expenses for the year ended December 31, 2015 increased by $74.1 million when compared to the year ended December 31, 2014. The increase is due to the fair value of the common shares issued to MD Anderson in consideration for the MD Anderson License in the amount of $67.3 million and a $10.0 million charge for in process research and development with Intrexon (see Note 8 to the accompanying financial statements), and an increase of $14.9 million in spending on CAR-T programs pursuant to the MD Anderson License. These increases were offset by decreases in discovery and nonclinical spending of $15.6 million, $1.9 million in payroll, bonus, and employee related expenses, and $600 thousand in other expenses.

General and Administrative Expenses General and administrative expenses during the years ended December 31, 2015 and 2014 were as follows:

	Year ended December 31,		Change	
($ in thousands)	**2015**	**2014**		
General and administrative	$17,647	$12,166	$5,481	45%

General and administrative expenses for the year ended December 31, 2015 increased by $5.5 million when compared to the year ended December 31, 2014. The change was primarily due to increases in employee related and stock compensation expenses of $4.8 million and $840 thousand in costs associated with contracted outside services primarily related to the MD Anderson transaction, offset by decreased spending of approximately $160 thousand in travel and other expenses during the year ended December 31, 2015.

Other Income (Expense) Other income (expense) during the years ended December 31, 2015 and 2014 were as follows:

	Year ended December 31,		Change	
($ in thousands)	**2015**	**2014**		
Other income (expense), net	$ 12	$ (5)	$ 17	-340%
Change in fair value of warrants	—	11,723	(11,723)	-100%
Total	$ 12	$11,718	$(11,706)	

The decrease in other income (expense) from the year ended December 31, 2015 compared to the year ended December 31, 2014 was due primarily to the change in the fair value of liability-classified warrants, which yielded a gain of $11.7 million for the year ended December 31, 2014. The warrants expired on December 9, 2014.

Results of Operations for the fiscal year ended December 31, 2014 versus December 31, 2013

Collaboration Revenues Revenues for the years ended December 31, 2014 and 2013 were as follows:

($ in thousands)	Year ended December 31, 2014	2013	Change	
Collaboration revenue	$1,373	$800	$573	72%

Revenue for the year ended December 31, 2014 increased in comparison to the year ended December 31, 2013. In connection with our March 7, 2011 collaboration agreement with Solasia Pharma K.K., we received $5.0 million in research and development funding which was being earned over the period of effort, originally estimated to be 75 months. In July 2014, we entered into an amended and restated License and Collaboration Agreement with Solasia (see Note 8 to the accompanying financial statements), resulting in the Company no longer being obligated to continue their research and development efforts in connection with the upfront payment. However, there are certain deliverables, including the transition of clinical trial data, intellectual property, and completion of certain services that are included in the amended and restated License and Collaboration Agreement which are not separable from the agreement and have no stand-alone value. As a result, the Company determined that the estimated period for amortizing the upfront payment now coincides with the completion of the aforementioned deliverables which has been estimated to be December 31, 2015. Accordingly, the Company has recorded $1.4 million in revenue during the year ended December 31, 2014 while the remaining deferred revenue balance of $1.4 million at December 31, 2014 has been classified as current.

Research and Development Expenses Research and development expenses during the years ended December 31, 2014 and 2013 were as follows:

($ in thousands)	Year ended December 31, 2014	2013	Change	
Research and development	$32,706	$42,852	$(10,146)	-24%

Research and development expenses for the year ended December 31, 2014 decreased by $10.1 million when compared to the year ended December 31, 2013. On March 26, 2013, we announced the decision to immediately terminate development of palifosfamide in first-line metastatic soft tissue sarcoma and during the quarter ended September 30, 2013, completed a workforce reduction plan to reduce costs (see Note 4 in the accompanying financial statements). This resulted in lower costs of $2.4 million related to the Phase 3 palifosfamide study in SCLC as the decision was made to suspend enrollment pending further data, lower costs related to the Phase 3 palifosfamide study in soft tissue sarcoma of $11.2 million, lower other clinical costs of $0.9 million, lower employee-related costs of $2.0 million and lower manufacturing costs of $3.4 million. The decrease was offset by an increase of $5.6 million in discovery activities, $3.7 million in nonclinical activities, and $0.5 million of other costs all related to our synthetic biology program.

General and Administrative Expenses General and administrative expenses during the years ended December 31, 2014 and 2013 were as follows:

($ in thousands)	Year ended December 31, 2014	2013	Change	
General and administrative	$12,166	$15,661	$(3,495)	-22%

General and administrative expenses for the year ended December 31, 2014 decreased by $3.5 million when compared to the year ended December 31, 2013. The decrease was primarily due to lower employee-related costs

of $1.8 million as a result of our workforce reduction plan (see Note 4 in the accompanying financial statements) and $1.7 million in non-employee contracted costs.

Other Income (Expense) Other income (expense) during the years ended December 31, 2014 and 2013 were as follows:

($ in thousands)	Year ended December 31, 2014	2013	Change	
Other income (expense), net	$ (5)	$ (579)	$ 574	-99%
Change in fair value of warrants	11,723	1,185	10,538	889%
Total	$11,718	$ 606	$11,112	

The decrease in other income (expense) from the year ended December 31, 2014 compared to the year ended December 31, 2013 was due primarily to the change in the fair value of liability-classified warrants, which yielded a gain of $11.7 million for the year ended December 31, 2014 as compared to a gain of $1.2 million for the year ended December 31, 2013. The liability-classified warrants are fully expired as of December 31, 2014.

Liquidity and Capital Resources

As of December 31, 2015, we had approximately $140.7 million in cash and cash equivalents, compared to $42.8 million in cash and cash equivalents as of December 31, 2014. Given our development plans, we anticipate cash resources will be sufficient to fund our operations into the fourth quarter of 2017. However, changes may occur that would consume our existing capital prior to that time, including the scope and progress of our research and development efforts and changes in governmental regulation. Actual costs may ultimately vary from our current expectations, which could materially impact our use of capital and our forecast of the period of time through which our financial resources will be adequate to support our operations. We have estimated the sufficiency of our cash resources based in part on the anticipated advancement of our synthetic immuno-oncology product candidates in the clinic under our exclusive channel partnership with Intrexon along with our license agreements with MD Anderson, and Ares Trading, and we expect that the costs associated with these and additional product candidates will increase the level of our overall research and development expenses significantly going forward.

Although all human clinical trials are expensive and difficult to design and implement, we believe that due to complexity, costs associated with clinical trials for synthetic biology immuno-oncology are greater than the corresponding costs associated with clinical trials for small molecule candidates.

In addition to these factors, our actual cash requirements may vary materially from our current expectations for a number of other factors that may include, but are not limited to, changes in the focus and direction of our development programs, competitive and technical advances, costs associated with the development of our product candidates, our ability to secure partnering arrangements, and the costs of filing, prosecuting, defending and enforcing our intellectual property rights. If we exhaust our capital reserves more quickly than anticipated, regardless of the reason, and we are unable to obtain additional financing on terms acceptable to us or at all, we will be unable to proceed with development of some or all of our product candidates on expected timelines and will be forced to prioritize among them.

We expect that we will need additional financing to support our long-term plans for clinical trials and new product development. We expect to finance our cash needs through the sale of equity securities, strategic collaborations and/or debt financings, or through other sources that may be dilutive to existing stockholders. There can be no assurance that we will be able to obtain funding from any of these sources or, if obtained, what the terms of such funding(s) may be, or that any amount that we are able to obtain will be adequate to support our working capital requirements until we achieve profitable operations. We have no current

committed sources of additional capital. Recently, capital markets have experienced a period of instability that may severely hinder our ability to raise capital within the time periods needed or on terms we consider acceptable, if at all. If we are unable to raise additional funds when needed, we may not be able to continue development and regulatory approval of our products, or we could be required to delay, scale back or eliminate some or all our research and development programs.

Recent Financing Transactions

February 2015 Public Offering

On February 3, 2015, the Company entered into an underwriting agreement with J.P. Morgan Securities LLC, as representative of the several underwriters named therein, relating to the issuance and sale of 10,000,000 shares of our common stock. The price to the public in the offering was $8.75 per share, and the underwriters agreed to purchase the shares from the Company pursuant to the underwriting agreement at a purchase price of $8.225 per share. Under the terms of the underwriting agreement, the Company also granted the underwriters an option, exercisable for 30 days, to purchase up to an additional 1,500,000 shares of common stock at a purchase price of $8.225 per share. The offering was made pursuant to the Company's effective registration statement on Form S-3 (SEC File No. 333-201826) previously filed with the SEC, and a prospectus supplement thereunder. The underwriters purchased the 10,000,000 shares and the additional 1,500,000 shares on February 9 and February 17, 2015, respectively. The net proceeds from the offering were approximately $94.3 million after deducting underwriting discounts and estimated offering expenses paid by the Company.

October 2013 Public Offering

On October 23, 2013, the Company entered into an underwriting agreement with J.P. Morgan Securities LLC, as representative of the several underwriters named therein, relating to the issuance and sale of 14,300,000 shares of our common stock. The price to the public in the offering was $3.50 per share, and the underwriters agreed to purchase the shares from the Company pursuant to the underwriting agreement at a purchase price of $3.29 per share. Under the terms of the underwriting agreement, the Company also granted the underwriters an option, exercisable for 30 days, to purchase up to an additional 2,145,000 shares of common stock at a purchase price of $3.29 per share, and the underwriters elected to exercise such option in full. The offering was made pursuant to the Company's effective registration statement on Form S-3 (SEC File No. 333-177793) previously filed with the SEC, and a prospectus supplement thereunder. The underwriters purchased the 14,300,000 shares and the additional 2,145,000 shares on October 29, 2013. The net proceeds from the offering were approximately $53.9 million after deducting underwriting discounts and estimated offering expenses paid by the Company.

Cash Increases and (Decreases)

The following table summarizes our net increase (decrease) in cash and cash equivalents for the years ended December 31, 2015, 2014 and 2013:

	Year ended December 31,		
($ in thousands)	**2015**	**2014**	**2013**
Net cash provided by (used in):			
Operating activities	$ (10)	$(36,650)	$(59,509)
Investing activities	(412)	(193)	(131)
Financing activities	98,336	11,442	54,538
Net increase (decrease) in cash and cash equivalents	$97,914	$(25,401)	$ (5,102)

Net cash used in operating activities was $10 thousand for the year ended December 31, 2015 compared to $36.7 million for the year ended December 31, 2014. The $36.7 million decrease in cash used was primarily due

to a receipt of $57.5 million under the Ares Trading Agreement (see Note 8 to the accompanying financial statements), offset by increased spending of $11.3 million related to MD Anderson quarterly payments, a one-time payment of $10 million to Intrexon for a technology access fee pursuant to the terms of the GvHD Agreement, and spending on contracted outside services of $500 thousand.

Net cash used in investing activities was $412 thousand for year ended December 31, 2015 compared to $193 thousand for the year ended December 31, 2014. The change was due to increased spending on property, plant, and equipment.

Net cash provided by financing activities was $98.3 million for the year ended December 31, 2015 compared to $11.4 million for the year ended December 31, 2015. The $86.9 million change in cash provided by financing activities is primarily attributable to proceeds of approximately $94.3 million associated with our February 2015 public offering (see Note 2 to the accompanying financial statements) and $4.6 million from stock option exercises offset by $1.4 million in other changes.

Operating Capital and Capital Expenditure Requirements

We anticipate that losses will continue for the foreseeable future. At December 31, 2015, our accumulated deficit was approximately $492.7 million. Our actual cash requirements may vary materially from those planned because of a number of factors including:

- Changes in the focus, direction and pace of our development programs;
- Competitive and technical advances;
- Costs associated with the development of our product candidates;
- Our ability to secure partnering arrangements;
- Costs of filing, prosecuting, defending and enforcing any patent claims and any other intellectual property rights, or other developments, and
- Other matters identified under Part I – Item 1A. “Risk Factors.”

Working capital as of December 31, 2015 was $134.4 million, consisting of $152.5 million in current assets and $18.1 million in current liabilities. Working capital as of December 31, 2014 was $33.3 million, consisting of $44.1 million in current assets and $10.8 million in current liabilities.

Contractual Obligations

The following table summarizes our outstanding obligations as of December 31, 2015 and the effect those obligations are expected to have on our liquidity and cash flows in future periods:

($ in thousands)	Total	Less than 1 year	2 - 3 years	4 - 5 years	More than 5 years
Operating leases	$ 4,057	$ 1,139	$ 1,779	$ 854	$ 285
Royalty and license fees	35,250	16,250	19,000	—	—
Total	$39,307	$ 17,389	$ 20,779	$ 854	$ 285

Our commitments for operating leases relate to the lease for our corporate headquarters in Boston, Massachusetts, and office space in New York, New York. On December 21, 2015, we renewed a portion of the lease for our corporate headquarters in Boston, MA through August 31, 2021 for $427 thousand, annually. Our commitments for royalty and license fees relate to our license agreement with MD Anderson, requiring payment upon the first patient treated in a pivotal trial in darinaparsin, currently being developed under the amended and

restated License and Collaboration Agreement with Solasia. As part of the amended and restated License and Collaboration agreement with Solasia (see Note 8 to the accompanying financial statements), we will receive full reimbursement of this license payment. The contract milestone and contract installment payments, which are included in "Royalty and License Fees" in the above table, relate to our agreement with Baxter Healthcare Corporation for the purchase of the assets relating to indibulin. The remaining contract installment payments to Baxter are comprised of two separate $250 thousand payments on November 3, 2016 and 2017. However, for the purpose of the above table, we have assumed that the payment of the milestones will occur within five years of December 31, 2015. Included in the above table are obligations for the subleased portion of our Boston and New York offices as noted below and in Note 8 to the accompanying financial statements. We expect to receive a total of $306 thousand in the next year and $612 thousand in the next 2-3 years from our subtenant in the New York office. On May 22, 2015, we subleased previously vacant office space in the Boston Office for approximately $105 thousand for the period of June 2015 through August 2016. We expect to receive a total of $44 thousand in the next year from our subtenant in the Boston office.

On January 13, 2015, the Company entered into a license agreement with MD Anderson as detailed in Note 8 to the accompanying financial statements. The agreement includes quarterly payments of $3.75 million which would increase "Royalty and License Fees" in the above chart by $15 million in the column "Less than 1 Year" and by $18.75 million in the column "2 – 3 Years."

Critical Accounting Policies and Significant Estimates

Our Management's Discussion and Analysis of our financial condition and results of operations is based upon our financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these 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 during the reporting periods. We evaluate our estimates and judgments on an ongoing basis. Actual results may differ materially from these estimates under different assumptions or conditions.

We believe the following are our more significant estimates and judgments used in the preparation of our financial statements:

- Clinical trial expenses;
- Collaboration agreements;
- Fair value measurements of stock based compensation and warrants; and
- Income taxes.

Clinical Trial Expenses

Clinical trial expenses include expenses associated with CROs. The invoicing from CROs for services rendered can lag several months. We accrue the cost of services rendered in connection with CRO activities based on our estimate of site management, monitoring costs, and project management costs. We maintain regular communication with our CROs to gauge the reasonableness of our estimates. Differences between actual clinical trial expenses and estimated clinical trial expenses recorded have not been material and are adjusted for in the period in which they become known.

Revenue Recognition from Collaboration Agreements

The Company has primarily generated revenue through collaboration arrangements with strategic partners for the development and commercialization of product candidates. The Company recognizes revenue for each unit of accounting when evidence of an arrangement exists, delivery has occurred or services have been rendered, the seller's price to the buyer is fixed or determinable and collectability is reasonably assured

The Company's collaboration agreements may provide for various types of payments, including upfront payments, funding of research and development, milestone payments, licensing fees and product royalties. The specifics of the Company's significant agreements are detailed Note 8, Commitments and Contingencies.

The Company considers a variety of factors in determining the appropriate method of accounting for its collaboration agreements, including whether multiple deliverables can be separated and accounted for individually as separate units of accounting. Where there are multiple deliverables within a collaboration agreement that cannot be separated and therefore are combined into a single unit of accounting, revenues are deferred and recognized over the estimated period of performance, which is typically the development term. If the deliverables can be separated, the Company applies the relevant revenue recognition guidance to each individual deliverable. The specific methodology for the recognition of the underlying revenue is determined on a case-by-case basis according to the facts and circumstances applicable to each agreement. Generally, the Company has accounted for its collaboration agreements as a single unit of accounting.

Milestone payments are recognized as revenue upon achievement of the milestone only if (1) the milestone payment is non-refundable, (2) substantive effort is involved in achieving the milestone and (3) the amount of the milestone is reasonable in relation to the effort expended or the risk associated with achievement of the milestone. If any of these conditions are not met, the milestone payment is deferred and recognized as revenue over the estimated remaining period of performance under the contract as the Company completes its performance obligations. Royalties are recognized as earned in accordance with the terms of various research and collaboration agreements.

Fair Value Measurements of Stock Based Compensation and Warrants

Accounting standards define fair value, establish a framework for measuring fair value under generally accepted accounting principles and enhance disclosures about fair value measurements. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The standard describes a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value which are the following:

- 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.
- Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

We make certain assumptions in order to value and expense our share-based compensation awards and liability classified warrants. In connection with valuing stock options and liability classified warrants we use the Black-Scholes model and the binomial model, respectively, which require us to estimate certain subjective assumptions. The key assumptions we make are: the expected volatility of our stock; the expected term of the award; and the expected forfeiture rate related to share based awards. In connection with our restricted stock programs, we make assumptions principally related to the forfeiture rate. The key assumptions used to estimate fair value for our warrants include current and expected stock prices, volatility, dividends, forward yield curves and discount rates.

We review our valuation assumptions periodically and, as a result, we may change our valuation assumptions used to value share-based awards granted in future periods and warrants. Such changes may lead to a significant change in the expense we recognize in connection with share-based payments and warrants.

Income Taxes

In preparing our financial statements, we estimate our income tax liability in each of the jurisdictions in which we operate by estimating our actual current tax expense together with assessing temporary differences resulting from differing treatment of items for tax and financial reporting purposes. These differences result in deferred tax assets and liabilities, which, prior to the consideration for the need for a valuation allowance, are included on the balance sheet. Significant management judgment is required in assessing the realizability of our deferred tax assets. In performing this assessment, we consider whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. In making this determination, under the applicable financial accounting standards, we are allowed to consider the scheduled reversal of deferred tax liabilities, projected future taxable income, and the effects of tax planning strategies. Our estimates of future taxable income include, among other items, our estimates of future income tax deductions related to the exercise of stock options. In the event that actual results differ from our estimates, we adjust our estimates in future periods and we may need to establish a valuation allowance, which could materially impact our financial position and results of operations.

We account for uncertain tax positions using a “more-likely-than-not” threshold for recognizing and resolving uncertain tax positions. The evaluation of uncertain tax positions is based on factors that include, but are not limited to, changes in tax law, the measurement of tax positions taken or expected to be taken in tax returns, the effective settlement of matters subject to audit, new audit activity and changes in facts or circumstances related to a tax position. We evaluate uncertain tax positions on an annual basis and adjust the level of the liability to reflect any subsequent changes in the relevant facts surrounding the uncertain positions. Our liabilities for uncertain tax positions can be relieved only if the contingency becomes legally extinguished through either payment to the taxing authority or the expiration of the statute of limitations, the recognition of the benefits associated with the position meet the “more-likely-than-not” threshold or the liability becomes effectively settled through the examination process. We consider matters to be effectively settled once the taxing authority has completed all of its required or expected examination procedures, including all appeals and administrative reviews; we have no plans to appeal or litigate any aspect of the tax position; and we believe that it is highly unlikely that the taxing authority would examine or re-examine the related tax position. We also accrue for potential interest and penalties, related to unrecognized tax benefits in income tax expense.

Recent Accounting Pronouncements

For a discussion of new accounting standards please read Note 3 to the accompanying financial statements, *Summary of Significant Accounting Principles* included in this report.

Off-Balance Sheet Arrangements

We have not entered into, nor do we currently have any special purpose entities or off-balance sheet financing arrangements as defined under SEC rules.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Our exposure to market risk is limited to our cash. The goals of our investment policy are preservation of capital, fulfillment of liquidity needs and fiduciary control of cash and investments. We also seek to maximize income from our investments without assuming significant risk. To achieve our goals, we maintain our cash in interest-bearing cash accounts. As all of our investments are cash deposits in a global bank, it is subject to minimal interest rate risk.

Effect of Currency Exchange Rates and Exchange Rate Risk Management

We conduct a number of clinical studies outside of the United States primarily in Western Europe. These business operations are not material at this time, and therefore we do not anticipate that currency fluctuations will have a material impact on our financial position, results of operations or cash flows at this time.

Item 8. Financial Statements and Supplementary Data

The information required by this Item 8 is contained on pages F-1 through F-34 of this annual report on Form 10-K and is incorporated herein by reference.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosures

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Accounting Officer, we have evaluated the effectiveness of our disclosure controls and procedures, as such term is defined under Rule 13a-15(e) or 15d-15(e) promulgated under the Exchange Act, as of December 31, 2015. Based on that evaluation, our Chief Executive Officer and Chief Accounting Officer have concluded that as of such date, our disclosure controls and procedures were effective.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting for us. Internal control over financial reporting (as defined in Rule 13a-15(f) of the Exchange Act) is a process to provide reasonable assurance regarding the reliability of our financial reporting for external purposes in accordance with accounting principles generally accepted in the United States of America. Internal control over financial reporting includes maintaining records that in reasonable detail accurately and fairly reflect our transactions; providing reasonable assurance that transactions are recorded as necessary for preparation of our financial statements; providing reasonable assurance that receipts and expenditures of company assets are made in accordance with management authorization; and providing reasonable assurance that unauthorized acquisition, use or disposition of company assets that could have a material effect on our financial statements would be prevented or detected on a timely basis. Because of its inherent limitations, internal control over financial reporting is not intended to provide absolute assurance that a misstatement of our financial statements would be prevented or detected.

Management conducted an evaluation of the effectiveness, as of December 31, 2015, of our internal control over financial reporting based on the framework in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013. Based on this evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2015.

RSM US LLP (formerly McGladrey LLP), an independent registered public accounting firm, has issued an attestation report on our internal control over financial reporting as of December 31, 2015. That report is included in this annual report on Form 10-K.

Changes in Internal Controls over Financial Reporting

There were no changes in our internal control over financial reporting during the year ended December 31, 2015 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Information in response to this Item is incorporated herein by reference to the information from our definitive proxy statement to be filed pursuant to Regulation 14A within 120 days after the end of the fiscal year covered by this annual report on Form 10-K under the sections titled *Proposals — Election of Directors, Executive Officers, Information Regarding the Board of Directors and Corporate Governance* and *Stock Ownership* .

Item 11. Executive Compensation

Information in response to this Item is incorporated herein by reference to the information from our definitive proxy statement to be filed pursuant to Regulation 14A within 120 days after the end of the fiscal year covered by this annual report on Form 10-K under the section titled *Executive Compensation* .

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Securities Authorized for Issuance under Equity Compensation Plans

Our Amended and Restated 2003 Stock Option Plan, or the 2003 Plan, and our 2012 Stock Option Plan, or the 2012 Plan, are our only equity compensation plans approved by our stockholders. The following table sets forth certain information as of December 31, 2015 with respect to the 2003 and 2012 Plans:

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options (A)	Weighted-Average Exercise Price of Outstanding Options (B)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (A)) (C)
Equity compensation plans approved by stockholders:			
2003 Stock Option Plan	1,043,167	$ 4.42	—
2012 Stock Option Plan	2,438,301	5.19	2,768,230
Total:	3,481,468	$ 4.96	2,768,230
Equity compensation plans not approved by stockholders:			
	—	$ —	—
Total:	—	$ —	—

Additional information in response to this Item is incorporated herein by reference to the information from our definitive proxy statement to be filed pursuant to Regulation 14A within 120 days after the end of the fiscal year covered by this annual report on Form 10-K under the section titled *Stock Ownership* .

Item 13. Certain Relationships and Related Transactions, and Director Independence

Information in response to this Item is incorporated herein by reference to the information from our definitive proxy statement to be filed pursuant to Regulation 14A within 120 days after the end of the fiscal year covered by this annual report on Form 10-K under the section titled *Certain Relationships and Related Transactions and Information Regarding the Board of Directors and Corporate Governance* .

Item 14. Principal Accountant Fees and Services

Information in response to this Item is incorporated herein by reference to the information from our definitive proxy statement to be filed pursuant to Regulation 14A within 120 days after the end of the fiscal year covered by this annual report on Form 10-K under the section titled *Independent Registered Public Accounting Firm Fees and Other Matters* .

PART IV

Item 15. Exhibits, Financial Statement Schedules

(1) Financial Statements:

The Financial Statements required to be filed by Item 8 of this annual report on Form 10-K, and filed in this Item 15, are as follows:

(2) Financial Statement Schedules:

Schedules are omitted because they are not applicable, or are not required, or because the information is included in the financial statements and notes thereto.

(3) Exhibits:

The exhibits which are filed or furnished with this report or which are incorporated herein by reference are set forth in the Exhibit Index beginning on page A-1, which is incorporated herein by reference.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ZIOPHARM ONCOLOGY, INC.

Date: February 24, 2016

By: /s/ Laurence J.N. Cooper
Laurence J.N. Cooper, M.D., Ph.D.
Chief Executive Officer
(Principal Executive Officer)

Date: February 24, 2016

By: /s/ Kevin G. Lafond
Kevin G. Lafond
Vice President, Chief Accounting Officer and Treasurer (Principal Financial and Accounting Officer)

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Laurence J.N. Cooper and Kevin G. Lafond, jointly and severally, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her, and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this report, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises hereby ratifying and confirming all that said attorneys-in-fact and agents, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Laurence J.N. Cooper Laurence J.N. Cooper, M.D., Ph.D.	Director and Chief Executive Officer (Principal Executive Officer)	February 24, 2016
/s/ Kevin G. Lafond Kevin G. Lafond	Vice President, Chief Accounting Officer and Treasurer (Principal Financial and Accounting Officer)	February 24, 2016
/s/ Murray Brennan Murray Brennan	Director	February 24, 2016
/s/ James Cannon James Cannon	Director	February 24, 2016
/s/ Wyche Fowler, Jr. Wyche Fowler, Jr.	Director	February 24, 2016

Signature	Title	Date
/s/ Randal J. Kirk Randal J. Kirk	Director	February 24, 2016
/s/ Scott Tariff Scott Tariff	Director	February 24, 2016
/s/ Michael Weiser Michael Weiser	Director	February 24, 2016

ZIOPHARM Oncology, Inc.

INDEX TO FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of
ZIOPHARM Oncology, Inc.
Boston, Massachusetts

We have audited the accompanying balance sheets of ZIOPHARM Oncology, Inc. as of December 31, 2015 and 2014, and the related statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2015. We also have audited ZIOPHARM Oncology, Inc. 's internal control over financial reporting as of December 31, 2015, based on criteria established in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013. ZIOPHARM Oncology, Inc.'s management is responsible for these financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying management's report on financial reporting. Our responsibility is to express an opinion on these financial statements and an opinion on the Company's internal control over financial reporting based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that *(a)* pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; *(b)* provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and *(c)* provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of ZIOPHARM Oncology, Inc. as of December 31, 2015 and 2014, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2015, in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, ZIOHPHARM Oncology, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2015, based on criteria established in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013.

/s/ RSM US LLP

Boston, Massachusetts
February 24, 2016

ZIOPHARM Oncology, Inc.

BALANCE SHEETS

(in thousands, except share and per share data)

	December 31, 2015	December 31, 2014
ASSETS		
Current assets:		
Cash and cash equivalents	$ 140,717	$ 42,803
Receivables	446	145
Prepaid expenses and other current assets	11,358	1,139
Total current assets	152,521	44,087
Property and equipment, net	581	531
Deposits	128	128
Other non current assets	494	491
Total assets	$ 153,724	$ 45,237
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 2,008	$ 2,004
Accrued expenses	8,906	7,182
Deferred revenue - current portion	6,861	1,360
Deferred rent - current portion	348	280
Total current liabilities	18,123	10,826
Deferred revenue, net of current position	47,917	—
Deferred rent, net of current position	313	570
Total liabilities	66,353	11,396
Commitments and contingencies (note 8)		
Stockholders' equity:		
Common stock, $0.001 par value; 250,000,000 shares authorized; 131,718,579 and 104,452,105 shares issued and outstanding at December 31, 2015 and 2014, respectively	132	104
Additional paid-in capital - common stock	579,939	406,349
Accumulated Deficit	(492,700)	(372,612)
Total stockholders' equity	87,371	33,841
Total liabilities and stockholders' equity	$ 153,724	$ 45,237

The accompanying notes are an integral part of these financial statements.

ZIOPHARM Oncology, Inc.

STATEMENTS OF OPERATIONS

(in thousands, except share and per share data)

	For the Year Ended December 31,		
	2015	**2014**	**2013**
Collaboration Revenue	$ 4,332	$ 1,373	$ 800
Operating expenses:			
Research and development	106,785	32,706	42,852
General and administrative	17,647	12,166	15,661
Total operating expenses	124,432	44,872	58,513
Loss from operations	(120,100)	(43,499)	(57,713)
Other income (expense), net	12	(5)	(579)
Change in fair value of warrants	—	11,723	1,185
Net loss	$ (120,088)	$ (31,781)	$ (57,107)
Basic and diluted net loss per share	$ (0.96)	$ (0.31)	$ (0.66)
Weighted average common shares outstanding used to compute basic and diluted net loss per share	125,416,084	101,130,710	85,943,175

The accompanying notes are an integral part of these financial statements.

ZIOPHARM Oncology, Inc.

STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY

(in thousands, except share and per share data)

	Common Stock		Additional Paid-in Capital Common Stock	Additional Paid-in Capital Warrants	Accumulated Deficit	Total Stockholders' Equity/
	Shares	Amount				
Balance at December 31, 2012	83,236,840	$ 83	$ 325,177	$ 6,909	$ (283,724)	$ 48,445
Stock-based compensation	—	—	3,507	—	—	3,507
Issuance of common stock, net of commission and expenses of $3,678	16,445,000	16	53,864	—	—	53,880
Exercise of warrants to purchase common stock	112,808	—	396	(196)	—	200
Exercise of employee stock options	570,168	1	955	—	—	956
Issuance of restricted common stock	75,272	—	—	—	—	—
Repurchase of shares of restricted common stock	(116,723)	—	(498)	—	—	(498)
Cancelled of restricted stock	(163,747)	—	—	—	—	—
Expired warrants	—	—	3,110	(3,110)	—	—
Net loss	—	—	—	—	(57,107)	(57,107)
Balance at December 31, 2013	100,159,618	100	386,511	3,603	(340,831)	49,383

The accompanying notes are an integral part of these financial statements.

ZIOPHARM Oncology, Inc.

STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY (Cont.)

(in thousands, except share and per share data)

	Common Stock		Additional Paid-in Capital Common Stock	Additional Paid-in Capital Warrants	Accumulated Deficit	Total Stockholders' Equity/
	Shares	Amount				
Stock-based compensation	—	—	4,743	—	—	4,743
Exercise of warrants to purchase common stock	3,747,254	4	13,963	(3,313)	—	10,654
Exercise of employee stock options	613,138	—	1,386	—	—	1,386
Issuance of restricted common stock	66,828	—	—	—	—	—
Repurchase of shares of restricted common stock	(112,333)	—	(544)	—	—	(544)
Cancelled of restricted stock	(22,400)	—	—	—	—	—
Expired warrants	—	—	290	(290)	—	—
Net loss	—	—	—	—	(31,781)	(31,781)
Balance at December 31, 2014	104,452,105	$ 104	$ 406,349	$ 0	$ (372,612)	$ 33,841

The accompanying notes are an integral part of these financial statements.

ZIOPHARM Oncology, Inc.

STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY (Cont.)

(in thousands, except share and per share data)

	Common Stock		Additional Paid-in Capital Common Stock	Additional Paid-in Capital Warrants	Accumulated Deficit	Total Stockholders' Equity/
	Shares	Amount				
Stock-based compensation	—	—	7,997	—	—	7,997
Exercise of employee stock options	2,519,267	3	4,566	—	—	4,568
Issuance of restricted common stock	1,590,574	2	(2)	—	—	—
Repurchase of shares of restricted common stock	(61,819)	—	(518)	—	—	(518)
Repurchase of common stock	(3,711)	—	(34)	—	—	(34)
Issuance of common stock, net of commissions and expenses of $6,305	11,500,000	12	94,309	—	—	94,320
Issuance of common stock in licensing agreement	11,722,163	12	67,273	—	—	67,285
Net loss	—	—	—	—	(120,088)	(120,088)
Balance at December 31, 2015	131,718,579	$ 132	$ 579,939	$ —	$ (492,700)	$ 87,371

The accompanying notes are an integral part of these financial statements.

ZIOPHARM Oncology, Inc.

STATEMENTS OF CASH FLOWS

(in thousands)

	For the Year Ended December 31,		
	2015	**2014**	**2013**
Cash flows from operating activities:			
Net loss	$(120,088)	$(31,781)	$(57,107)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	357	462	738
Stock-based compensation	7,997	4,743	3,507
Change in fair value of warrants		(11,723)	(1,185)
Common stock issued in exchange for license agreement	67,285	—	—
Loss on disposal of fixed assets	—	—	585
Change in operating assets and liabilities:			
(Increase) decrease in:			
Receivables	(301)	—	(87)
Prepaid expenses and other current assets	(10,214)	809	4,964
Other noncurrent assets	(3)	37	477
Increase (decrease) in:			
Accounts payable	4	1,582	(1,087)
Accrued expenses	1,724	827	(10,159)
Deferred revenue	53,418	(1,373)	(800)
Deferred rent	(189)	(213)	625
Other noncurrent liabilities	—	(20)	20
Net cash used in operating activities	(10)	(36,650)	(59,509)
Cash flows from investing activities:			
Purchases of property and equipment	(412)	(193)	(132)
Proceeds from sale of property and equipment	—	—	1
Net cash used in investing activities	(412)	(193)	(131)
Cash flows from financing activities:			
Proceeds from exercise of stock options	4,568	1,386	956
Payments to employees for repurchase of restricted common stock	(518)	(544)	(498)
Proceeds from exercise of warrants	—	10,600	200
Repurchase of common stock	(34)	—	—
Proceeds from issuance of common stock, net	94,320	—	53,880
Net cash provided by financing activities	98,336	11,442	54,538
Net decrease in cash and cash equivalents	97,914	(25,401)	(5,102)
Cash and cash equivalents, beginning of period	42,803	68,204	73,306
Cash and cash equivalents, end of period	$ 140,717	$ 42,803	$ 68,204
Supplementary disclosure of cash flow information:			
Cash paid for interest	$ —	$ —	$ —
Cash paid for income taxes	$ —	$ —	$ —
Supplementary disclosure of noncash investing and financing activities:			
Exercise of equity-classified warrants to common shares	$ —	$ 692	$ 196
Issuance of common stock in license agreement	$ 67,285		
Exercise of liability-classified warrants to common shares	$ —	$ 54	$ —

The accompanying notes are an integral part of these financial statements.

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

1. Organization

ZIOPHARM Oncology, Inc., which is referred to as "ZIOPHARM" or the "Company", is a biopharmaceutical company seeking to acquire, develop and commercialize, on its own or with commercial partners, a diverse portfolio of cancer therapies that address unmet medical needs.

The Company's operations to date have consisted primarily of raising capital and conducting research and development. The Company's fiscal year ends on December 31.

The Company has operated at a loss since its inception in 2003 and has minimal revenues. The Company anticipates that losses will continue for the foreseeable future. At December 31, 2015, the Company's accumulated deficit was approximately $492.7 million. Given its current development plans, the Company anticipates cash resources will be sufficient to fund operations into the fourth quarter of 2017. The Company's ability to continue operations after its current cash resources are exhausted depends on its ability to obtain additional financing or to achieve profitable operations, as to which no assurances can be given. Cash requirements may vary materially from those now planned because of changes in the Company's focus and direction of its research and development programs, competitive and technical advances, patent developments, regulatory changes or other developments. Additional financing will be required to continue operations after the Company exhausts its current cash resources and to continue its long-term plans for clinical trials and new product development. There can be no assurance that any such financing can be obtained by the Company, or if obtained, what the terms thereof may be, or that any amount that the Company is able to raise will be adequate to support the Company's working capital requirements until it achieves profitable operations.

2. Financings

On February 3, 2015, the Company entered into an underwriting agreement with J.P. Morgan Securities LLC, as representative of the several underwriters named therein, relating to the issuance and sale of 10,000,000 shares of its common stock. The price to the public in the offering was $8.75 per share, and the underwriters agreed to purchase the shares from the Company pursuant to the underwriting agreement at a purchase price of $8.225 per share. Under the terms of the underwriting agreement, the Company also granted the underwriters an option, exercisable for 30 days, to purchase up to an additional 1,500,000 shares of common stock at a purchase price of $8.225 per share. The offering was made pursuant to the Company's effective registration statement on Form S-3 (SEC File No. 333-201826) previously filed with the SEC, and a prospectus supplement thereunder. The underwriters purchased the 10,000,000 shares and the additional 1,500,000 shares on February 9 and February 17, 2015, respectively. The net proceeds from the offering were approximately $94.3 million after deducting underwriting discounts and estimated offering expenses paid by the Company.

On October 23, 2013, the Company entered into an underwriting agreement with J. P. Morgan Securities LLC, as representative of the several underwriters named therein, relating to the issuance and sale of 14,300,000 shares of its common stock. The price to the public in the offering was $3.50 per share, and the underwriters agreed to purchase the shares from the Company pursuant to the underwriting agreement at a purchase price of $3.29 per share. Under the terms of the underwriting agreement, the Company also granted the underwriters an option, exercisable for 30 days, to purchase up to an additional 2,145,000 shares of common stock at a purchase price of $3.29 per share, and the underwriters elected to exercise such option in full. The offering was made pursuant to the Company's effective registration statement on Form S-3 (SEC File No. 333-177793) previously filed with the SEC, and a prospectus supplement thereunder. The underwriters purchased the 14,300,000 shares and the additional 2,145,000 shares on October 29, 2013. The net proceeds from the offering were approximately $53.9 million after deducting underwriting discounts and estimated offering expenses paid by the Company.

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

3. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP").

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management 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 and the reported amounts of revenues and expenses during the reporting period. Although the Company regularly assesses these estimates, actual results could differ from those estimates. Changes in estimates are recorded in the period in which they become known.

The Company's most significant estimates and judgments used in the preparation of our financial statements are:

- Clinical trial expenses;
- Collaboration agreements;
- Fair value measurements for stock based compensation and warrants; and
- Income taxes.

Subsequent Events

The Company evaluated all events and transactions that occurred after the balance sheet date through the date of this filing. During this period, the Company did not have any material subsequent events that impacted its financial statements or disclosures.

Cash and Cash Equivalents

Cash equivalents consist primarily of demand deposit accounts and deposits in short-term U.S. treasury money market mutual funds. Cash equivalents are stated at cost, which approximates fair market value.

Concentrations of Credit Risk

Financial instruments which potentially subject the Company to concentrations of credit risk consist principally of cash and cash equivalents. The Company maintains cash accounts in commercial banks, which may, at times, exceed federally insured limits. The Company has not experienced any losses in such accounts. The Company believes it is not exposed to any significant credit risk on cash and cash equivalents.

Property and Equipment

Property and equipment are recorded at cost. Expenditures for maintenance and repairs are charged to expense while the costs of significant improvements are capitalized. Depreciation is provided using the straight-line method over the following estimated useful lives of the related assets, which is between three and five years. Upon retirement or sale, the cost of the assets disposed of and the related accumulated depreciation are eliminated from the balance sheets and related gains or losses are reflected in the statements of operations.

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

3. Summary of Significant Accounting Policies (Continued)

Restricted Cash

Restricted cash of $388 thousand, which is restricted as collateral for the Company's facility leases and $104 thousand that is restricted as collateral for a line of credit is included in other assets.

Long-Lived Assets

The Company reviews the carrying values of its long-lived assets for possible impairment whenever events or changes in circumstances indicate that the carrying amounts of the assets may not be recoverable. Any long-lived assets held for disposal are reported at the lower of their carrying amounts or fair values less costs to sell.

Warrants

The Company applied the accounting standard which provided guidance in assessing whether an equity-based financial instrument is indexed to an entity's own stock for purposes of determining whether a financial instrument should be treated as a derivative. In applying the methodology the Company concluded that certain warrants issued by the Company had terms that did not meet the criteria to be considered indexed to the Company's own stock and therefore were classified as liabilities in the Company's balance sheet. The liability classified warrants were subject to re-measurement at each balance sheet date and any change in fair value was recognized as a component of "Other income, net" in the accompanying Statement of Operations. Fair value was measured using the binomial valuation model. All warrants expired in December 2014.

Fair Value Measurements

The Company has certain financial assets and liabilities recorded at fair value which have been classified as Level 1, 2 or 3 within the fair value hierarchy as described in the accounting standards for fair value measurements.

- 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.
- Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Assets and liabilities measured at fair value on a recurring basis as of December 31, 2015 and 2014 are as follows:

($ in thousands)	Fair Value Measurements at Reporting Date Using			
Description	Balance as of December 31, 2015	Quoted Prices in Active Markets for Identical Assets/Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash equivalents	$ 137,405	$ 137,405	$ —	$ —

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

3. Summary of Significant Accounting Policies (Continued)

($ in thousands)	Fair Value Measurements at Reporting Date Using			
Description	Balance as of December 31, 2014	Quoted Prices in Active Markets for Identical Assets/Liabilities (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash equivalents	$ 37,290	$ 37,290	$ —	$ —

The cash equivalents consist primarily of short term U.S. treasury money market mutual funds which are actively traded.

Revenue Recognition from Collaboration Agreements

The Company has primarily generated revenue through collaboration arrangements with strategic partners for the development and commercialization of product candidates. The Company recognizes revenue for each unit of accounting when evidence of an arrangement exists, delivery has occurred or services have been rendered, the seller's price to the buyer is fixed or determinable and collectability is reasonably assured

The Company's collaboration agreements may provide for various types of payments, including upfront payments, funding of research and development, milestone payments, licensing fees and product royalties. The specifics of the Company's significant agreements are detailed in Note 8, Commitments and Contingencies.

The Company considers a variety of factors in determining the appropriate method of accounting for its collaboration agreements, including whether multiple deliverables can be separated and accounted for individually as separate units of accounting. Where there are multiple deliverables within a collaboration agreement that cannot be separated and therefore are combined into a single unit of accounting, revenues are deferred and recognized over the estimated period of performance, which is typically the development term. If the deliverables can be separated, the Company applies the relevant revenue recognition guidance to each individual deliverable. The specific methodology for the recognition of the underlying revenue is determined on a case-by-case basis according to the facts and circumstances applicable to each agreement. Generally, the Company has accounted for its collaboration agreements as a single unit of accounting.

Milestone payments are recognized as revenue upon achievement of the milestone only if (1) the milestone payment is non-refundable, (2) substantive effort is involved in achieving the milestone and (3) the amount of the milestone is reasonable in relation to the effort expended or the risk associated with achievement of the milestone. If any of these conditions are not met, the milestone payment is deferred and recognized as revenue over the estimated remaining period of performance under the contract as the Company completes its performance obligations. Royalties are recognized as earned in accordance with the terms of various research and collaboration agreements.

Research and Development Costs

Research and development expenditures are charged to the statement of operations as incurred. Such costs include proprietary research and development activities, purchased research and development, and expenses associated with research and development contracts, whether performed by the Company or contracted with independent third parties.

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

3. Summary of Significant Accounting Policies (Continued)

Income Taxes

Income taxes are accounted for under the liability method. Deferred tax assets and liabilities are recognized for the estimated future tax consequences of temporary differences between the financial statement carrying amounts and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the year in which the temporary differences are expected to be recovered or settled. The Company evaluates the realizability of its deferred tax assets and establishes a valuation allowance when it is more likely than not that all or a portion of deferred tax assets will not be realized.

The Company accounts for uncertain tax positions using a "more-likely-than-not" threshold for recognizing and resolving uncertain tax positions. The evaluation of uncertain tax positions is based on factors including, but not limited to, changes in tax law, the measurement of tax positions taken or expected to be taken in tax returns, the effective settlement of matters subject to audit, new audit activity and changes in facts or circumstances related to a tax position. The Company evaluates this tax position on an annual basis. The Company also accrues for potential interest and penalties, related to unrecognized tax benefits in income tax expense (see Note 10, Income Taxes).

Accounting for Stock-Based Compensation

Stock-based compensation cost is measured at the grant date, based on the estimated fair value of the award, and is recognized as expense over the employee's requisite service period. Stock-based compensation expense is based on the number of awards ultimately expected to vest and is therefore reduced for an estimate of the awards that are expected to be forfeited prior to vesting. Consistent with prior years, the Company uses the Black-Scholes option pricing model which requires estimates of the expected term option holders will retain their options before exercising them and the estimated volatility of the Company's common stock price over the expected term.

The Company recognizes the full impact of its share-based employee payment plans in the statements of operations for each of the years ended December 31, 2015, 2014, and 2013 and did not capitalize any such costs on the balance sheets. The Company recognized $5.3 million, $3.7 million, and $2.3 million of compensation expense related to vesting of stock options during the years ended December 31, 2015, 2014, and 2013, respectively. In the years ended December 31, 2015, 2014, and 2013, the Company recognized $2.7 million, $1.0 million, and $1.2 million of compensation expense, respectively, related to vesting of restricted stock (see Note 12, Stock Option Plan). In the years ended December 31, 2015, 2014, and 2013, the Company recognized $8.0 million, $4.7 million, and $3.5 million of compensation expense, respectively, related to vesting of all employee and director awards. The following table presents share-based compensation expense included in the Company's Statements of Operations:

	Year ended December 31,		
(in thousands)	**2015**	**2014**	**2013**
Research and development	$1,403	$1,416	$ 792
General and administrative	6,594	3,327	2,715
Share based employee compensation expense before tax	7,997	4,743	3,507
Income tax benefit	—	—	—
Net share based employee compensation expense	$7,997	$4,743	$3,507

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

3. Summary of Significant Accounting Policies (Continued)

The fair value of each stock option is estimated at the date of grant using the Black-Scholes option pricing model. The estimated weighted-average fair value of stock options granted to employees in 2015, 2014, and 2013 was approximately $10.47, $3.58, and $2.51 per share, respectively. Assumptions regarding volatility, expected term, dividend yield and risk-free interest rate are required for the Black-Scholes model. The volatility assumption is based on the Company's historical experience. The risk-free interest rate is based on a U.S. treasury note with a maturity similar to the option award's expected life. The expected life represents the average period of time that options granted are expected to be outstanding. The Company calculated expected term using the simplified method described in SEC Staff Accounting Bulletin, or SAB, No. 107 and No. 110 as it continues to meet the requirements promulgated in SAB No. 110. The assumptions for volatility, expected life, dividend yield and risk-free interest rate are presented in the table below:

	2015	2014	2013
Weighted average risk-free interest rate	1.46 - 1.93%	1.74 - 2.11%	1.00 - 2.10%
Expected life in years	6	6	6
Expected volatility	79.13 - 86.81%	85.22 - 94.55%	83.40 - 95.96%
Expected dividend yield	0	0	0

Net Loss Per Share

Basic net loss per share is computed by dividing net loss by the weighted average number of common shares outstanding for the period. The Company's potentially dilutive shares, which include outstanding common stock options, unvested restricted stock and warrants, have not been included in the computation of diluted net loss per share for any of the periods presented as the result would be antidilutive. Such potential common shares at December 31, 2015, 2014, and 2013 consist of the following:

	December 31,		
	2015	2014	2013
Stock options	3,481,468	6,505,664	6,747,303
Unvested restricted stock	1,586,388	144,508	352,865
Warrants	—	—	10,539,767
	5,067,856	6,650,172	17,639,935

New Accounting Pronouncements

In August 2014, the FASB issued ASU 2014-15, *Presentation of Financial Statements—Going Concern* (Subtopic 205-40) in which management should evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the entity's ability to continue as a going concern within one year after the date that the financial statements are issued (or within one year after the date that the financial statements are available to be issued when applicable). When management identifies conditions or events that raise substantial doubt about an entity's ability to continue as a going concern, management should consider whether its plans that are intended to mitigate those relevant conditions or events will alleviate the substantial doubt. This update is effective for annual periods beginning after December 15, 2016, and early application is permitted for any annual or interim period thereafter.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers* (Topic 606), which clarifies the principles for recognizing revenue and develops a common revenue standard for U.S. GAAP and

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

3. Summary of Significant Accounting Policies (Continued)

IFRS. This standard removes inconsistencies and weaknesses between U.S. GAAP and IFRS in revenue requirements, provides a more robust framework for addressing revenue issues, improves comparability of revenue recognition practices across entities, industries, jurisdictions, and capital markets, provides more useful information to users of financial statements through improved disclosure requirements, and simplifies the preparation of financial statements by reducing the number of requirements to which an entity must refer. This update is effective for annual periods beginning after December 15, 2017, including interim periods within that reporting period and early application is not permitted. The Company is still evaluating this standard and its impact on our financial position or results of operations.

4. Restructuring

The Company underwent restructuring activities during the year ended December 31, 2013 which included a reduction in workforce and office space, resulting in sublease agreements in Boston and New York. As a result, the Company incurred restructuring charges of $1.7 million, $0.6 million was included in general and administrative expenses and $1.1 million was included in research and development expenses. The Company also incurred charges for exit and disposal activities from the Boston and New York sublease agreements which resulted in an aggregate loss of $0.8 million recorded in general and administrative expenses, and a loss on the disposal of fixed assets of $0.6 million, recorded in Other income in the Statement of Operations for the year ended December 31, 2013.

On October 17, 2013, the Company entered into a sublease agreement to lease 7,259 square feet in its New York office to a subtenant. The Company remains primarily liable to pay rent on the original lease. Accordingly, the Company recorded a loss on the sublease in the amount of $729 thousand for the year ended December 31, 2013, representing the remaining contractual obligation of $2.3 million, less $1.6 million in payments from our subtenant. The Company retired assets in this subleased area as a result of this sublease with a net book value of $392 thousand, and recorded a loss on disposal of fixed assets for the same amount for the year ended December 31, 2013.

On August 30, 2013, the Company entered into a sublease agreement to lease 5,249 square feet in our Boston office to a subtenant. The Company remains primarily liable to pay rent on the original lease. The Company recorded a loss on the sublease in the amount of $42 thousand for the year ended December 31, 2013, representing the remaining contractual obligation of $367 thousand, less $325 thousand in payments from our subtenant. The Company retired assets in this subleased area as a result of this sublease with a net book value of $194 thousand, and recorded a loss on disposal of fixed assets. The company previously held a security deposit of $20 thousand in accordance with the sublease, which was recorded in other non-current assets and other liabilities on the balance sheet for the year ended December 31, 2013. This sublease tenant vacated the lease in October 2014. On May 22, 2015, the Company subleased previously vacant office space in the Boston Office for approximately $105 thousand for the period of June 2015 through August 2016. We expect to receive a total of $44 thousand in the next year from our subtenant in the Boston Office.

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

5. Property and Equipment, net

Property and equipment, net, consists of the following:

(in thousands)	December 31, 2015	December 31, 2014
Office and computer equipment	$ 1,105	$ 1,094
Software	886	874
Leasehold improvements	990	927
Manufacturing equipment	572	251
	3,553	3,146
Less: accumulated depreciation	(2,972)	(2,615)
Property and equipment, net	$ 581	$ 531

Depreciation and amortization charged to the Statement of Operations for the years ended December 31, 2015, 2014, and 2013 was: $358 thousand, $462 thousand and, $738 thousand, respectively.

6. Accrued Expenses

Accrued expenses consist of the following:

(in thousands)	December 31, 2015	December 31, 2014
Clinical consulting services	$2,331	$2,802
Preclinical services	3,976	2,027
Employee compensation	1,453	768
Professional services	317	422
Payroll taxes and benefits	289	417
Manufacturing services	253	308
Accrued vacation	221	212
Other consulting services	66	226
Total	$8,906	$7,182

7. Related Party Transactions

On January 6, 2011, the Company entered into an Exclusive Channel Partner Agreement, which is referred to as the Channel Agreement, with Intrexon Corporation, or Intrexon (see Note 8, Commitments and Contingencies). A director of the Company, Randall J. Kirk, is the CEO, a director, and the largest stockholder of Intrexon.

On March 27, 2015, the Company and Intrexon entered into a Second Amendment to Exclusive Channel Partner Agreement amending the Channel Agreement, which is referred to as the ECP Amendment. The ECP Amendment modified the scope of the parties' collaboration under the Channel Agreement in connection with the worldwide License and Collaboration Agreement, or the Ares Trading Agreement, which the Company and Intrexon entered into with Ares Trading S.A., or Ares Trading, on March 27, 2015. The ECP Amendment provided that Intrexon will pay to the Company fifty percent of all payments that Intrexon receives for upfronts, milestones and royalties under the Ares Trading Agreement (see Note 8, Commitments and Contingencies). The Amendment also reduces Intrexon's aggregate commitment under a Stock Purchase Agreement that the parties

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

7. Related Party Transactions (Continued)

executed in connection with the initial Channel Agreement to purchase the Company's common stock from $50.0 million to $43.5 million, which has been satisfied.

On January 13, 2015, the Company, together with Intrexon, entered into a license agreement with MD Anderson, which is referred to as the MD Anderson License. Pursuant to the MD Anderson License, the Company and Intrexon hold an exclusive, worldwide license to certain technologies owned and licensed by MD Anderson including technologies relating to novel CAR+ T cell therapies arising from the laboratory of Laurence Cooper, M.D., Ph.D., the Chief Executive Officer of the Company, formerly a professor of pediatrics at MD Anderson and now currently a visiting scientist under that institution's policies, as well as either co-exclusive or non-exclusive licenses under certain related technologies. In partial consideration for entering into the MD Anderson License, the Company issued MD Anderson an aggregate of 11,722,163 shares of common stock for which the Company incurred a $67.3 million charge. The Company has determined that the rights acquired in the MD Anderson License represent in-process research and development with no alternative future use. As a result of the common stock issued to MD Anderson in connection with this transaction, MD Anderson became a beneficial holder of more than five percent of the Company's common stock. (see Note 8, Commitments and Contingencies). During the year ending December 31, 2015, the Company made three quarterly payments totaling an aggregate of $11.25 million under this arrangement.

On February 3, 2015, Intrexon purchased 1,440,000 shares of common stock in the Company's public offering (see Note 2, Financings) upon the same terms as others that participated in the offering.

On June 29, 2015, the Company re-purchased 3,711 shares of common stock from Intrexon, at a discount of 5% to the closing price of the Company's common stock on the date of purchase, which represented fractional shares that resulted from Intrexon's special stock dividend of the Company's shares to Intrexon's shareholders, for $34 thousand. On January 8, 2016, the Company purchased a remaining 168 shares from Intrexon for $2 thousand.

During the years ended December 31, 2015, 2014 and 2013, the Company expensed $16.3 million, $12.0 million, and $7.8 million, respectively, for services performed by Intrexon. As of December 31, 2015 and 2014 the Company has recorded $4.6 million and $1.9 million in current liabilities, respectively, for amounts due to Intrexon.

On September 28, 2015, the Company, entered into a new Exclusive Channel Collaboration Agreement, or the GvHD Agreement, with Intrexon, whereby the Company will use Intrexon's technology directed towards *in vivo* expression of effectors to research, develop and commercialize products for use in the treatment or prevention of graft-versus-host disease, or GvHD (see Note 8, Commitments and Contingencies). The Company paid Intrexon a technology access fee of $10 million in cash in October 2015 and will reimburse Intrexon for all research and development costs. Subject to certain expense allocations and other offsets provided in the ECC Agreement, the ECC Agreement also provides for equal sharing of the profits derived from the sale of the Products (see Note 8, Commitments and Contingencies).

8. Commitments and Contingencies

Operating Leases

Prior to December 31, 2012, the Company entered into an operating lease in New York, NY for office space. In accordance with this agreement, the Company entered into a letter of credit in the amount of $388 thousand, naming the Company's landlord as beneficiary. In January 2012, the Company amended the lease agreement, adding additional office space. The collateral for the letter of credit is restricted cash and recorded in other non-

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

8. Commitments and Contingencies (Continued)

current assets on the balance sheet as of December 31, 2015 and 2014. The lease for office space in New York, NY expires in October 2018.

On October 17, 2013, the Company entered into a sublease agreement to lease all of its New York office space to a subtenant. The Company remains primarily liable to pay rent on the original lease. The Company recorded a loss on the sublease in the amount of $729 thousand for the year ended December 31, 2013, representing the remaining contractual obligation of $2.3 million, less $1.6 million in payments from its subtenant. The Company retired assets as a result of this sublease with a net book value of $392 thousand, and recorded a loss on disposal of fixed assets for the same amount for the year ended December 31, 2013. The Company continues to maintain the $388 thousand letter of credit in respect of the New York office space.

Prior to December 31, 2012, the Company entered into separate operating lease agreements for various spaces in a building in Boston, MA. In June 2012, the Company re-negotiated a master lease for the entire Boston office space that incorporated all three lease agreements under the same master agreement expiring in August 2016. As of December 31, 2015 and 2014, a total security deposit of $127 thousand is included in deposits on the balance sheet.

On August 30, 2013, the Company entered into a sublease agreement to lease a portion of its Boston office to a subtenant. The Company remains liable to pay rent on the original lease. The Company recorded a loss on the sublease in the amount of $42 thousand for the year ended December 31, 2013, representing the remaining contractual obligation of $367 thousand, less $325 thousand in payments from its subtenant. This sublease tenant vacated the leased premises in October 2014. At December 31, 2014, the Company applied the $20 thousand deposit received from the sublease tenant against its outstanding rent obligation. On March 31, 2015, the Company recorded a loss of $167 thousand on the first floor sublease. On May 22, 2015, the Company subleased the vacant office space for approximately $105 thousand for the period of June 2015 through August 2016, and the tenant provided a security deposit of $17 thousand. Since the prior lease obligation has been fully expensed, rent received from the tenant will reduce current rent expense.

Future net minimum lease payments under operating leases as of December 31, 2015 are as follows (in thousands):

2016	$1,139
2017	928
2018	851
2019	427
2020 and beyond	712
	4,057
Less: contractual sublease income	(962)
Future minimum lease payments, net	$3,095

Total rent expense was approximately $1.0 million, $1.2 million, and $1.0 million for the years ended December 31, 2015, 2014, and 2013.

The Company records rent expense on a straight-line basis over the term of the lease. Accordingly, the Company has recorded a liability for deferred rent at December 31, 2015 and 2014 of $661 thousand ($348 thousand current and $313 long-term) and 2014 of $850 thousand ($280 thousand current and $570 long-term) respectively, which is recorded in deferred rent on the balance sheet.

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

8. Commitments and Contingencies (Continued)

License Agreements

Exclusive Channel Partner Agreement with Intrexon Corporation for the Cancer Programs

On January 6, 2011, the Company entered into an Exclusive Channel Partner Agreement, or the Channel Agreement, with Intrexon that governs a "channel partnering" arrangement in which the Company uses Intrexon's technology to research, develop and commercialize products in which DNA is administered to humans for expression of anti-cancer effectors for the purpose of treatment or prophylaxis of cancer, which the Company collectively refers to as the Cancer Program. This Channel Agreement establishes committees comprised of representatives of the Company and Intrexon that govern activities related to the Cancer Program in the areas of project establishment, chemistry, manufacturing and controls, clinical and regulatory matters, commercialization efforts and intellectual property.

The Channel Agreement grants the Company a worldwide license to use patents and other intellectual property of Intrexon in connection with the research, development, use, importing, manufacture, sale, and offer for sale of products involving DNA administered to humans for expression of anti-cancer effectors for the purpose of treatment or prophylaxis of cancer, which is collectively referred to as the ZIOPHARM Products. Such license is exclusive with respect to any clinical development, selling, offering for sale or other commercialization of ZIOPHARM Products, and otherwise is non-exclusive. Subject to limited exceptions, the Company may not sublicense these rights without Intrexon's written consent.

Under the Channel Agreement, and subject to certain exceptions, the Company is responsible for, among other things, the performance of the Cancer Program, including the development, commercialization and certain aspects of manufacturing of ZIOPHARM Products. Intrexon is responsible for establishing manufacturing capabilities and facilities for the bulk manufacture of products developed under the Cancer Program, certain other aspects of manufacturing and costs of discovery-stage research with respect to platform improvements and costs of filing, prosecution and maintenance of Intrexon's patents.

Subject to certain expense allocations and other offsets provided in the Channel Agreement, the Company will pay Intrexon on a quarterly basis 50% of net profits derived in that quarter from the sale of ZIOPHARM Products, calculated on a ZIOPHARM Product-by- ZIOPHARM Product basis. The Company has likewise agreed to pay Intrexon on a quarterly basis 50% of revenue obtained in that quarter from a sublicensor in the event of a sublicensing arrangement. In addition, in partial consideration for each party's execution and delivery of the Channel Agreement, the Company entered into a stock purchase agreement with Intrexon.

Upon termination of the Channel Agreement, the Company may continue to develop and commercialize any ZIOPHARM Product that, at the time of termination:

- Is being commercialized by the Company;
- Has received regulatory approval;
- Is a subject of an application for regulatory approval that is pending before the applicable regulatory authority; or
- Is the subject of at least an ongoing Phase 2 clinical trial (in the case of a termination by Intrexon due to an uncured breach or a voluntary termination by the Company), or an ongoing Phase 1 clinical trial in the field (in the case of a termination by the Company due to an uncured breach or a termination by Intrexon following an unconsented assignment by the Company or its election not to pursue development of a Superior Therapy (as defined in the Channel Agreement)).

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

8. Commitments and Contingencies (Continued)

The Company's obligation to pay 50% of net profits or revenue described above with respect to these "retained" products will survive termination of the Channel Agreement.

On March 27, 2015, the Company and Intrexon entered into an Exclusive Channel Partner Amendment, or ECP Amendment, amending the Channel Agreement. The ECP Amendment modifies the scope of the parties' collaboration under the Channel Agreement in connection with the Ares Trading Agreement discussed below. Pursuant to the ECP Amendment, the chimeric antigen receptor T cell products to be developed and commercialized pursuant to the Ares Trading Agreement shall be included within the Intrexon/ZIOPHARM collaboration under the Channel Agreement. The ECP Amendment provides that Intrexon will pay to the Company fifty percent of all payments Intrexon receives for upfronts, milestones and royalties under the Ares Trading Agreement.

Exclusive Channel Collaboration Agreement with Intrexon Corporation for Graft-Versus-Host Disease

On September 28, 2015, the Company, entered into a new Exclusive Channel Collaboration Agreement, or the GvHD Agreement, with Intrexon, whereby the Company will use Intrexon's technology directed towards *in vivo* expression of effectors to research, develop and commercialize products for use in the treatment or prevention of graft-versus-host disease, or GvHD. The exclusive collaboration, or the GvHD Program, will focus on the pursuit of the following engineered cell therapy strategies, used either separately or in combination, for the targeted treatment of GvHD: (i) the infusion of regulatory T cells expressing membrane-bound and/or soluble interleukin-2 and (ii) the deployment of orally delivered, genetically modified *L. lactis* that express interleukin-2 to modulate immune function. The GvHD Agreement establishes committees comprised of Company and Intrexon representatives that will govern activities related to the GvHD Program in the areas of project establishment, chemistry, manufacturing and controls, clinical and regulatory matters, commercialization activities and intellectual property.

The GvHD Agreement grants the Company a worldwide license to use specified patents and other intellectual property of Intrexon in connection with the research, development, use, importing, manufacture, sale, and offer for sale of products developed under the GvHD Program, or the Products. Such license is exclusive with respect to any clinical development, selling, offering for sale or other commercialization of the Products, and otherwise is non-exclusive. Subject to limited exceptions, the Company may not sublicense the rights described without Intrexon's written consent.

Under the GvHD Agreement, and subject to certain exceptions, the Company is responsible for, among other things, the performance of the GvHD Program including development, commercialization and certain aspects of manufacturing of the Products. Among other things, Intrexon is responsible for the costs of establishing manufacturing capabilities and facilities for the bulk manufacture of the Products, certain other aspects of manufacturing, costs of discovery-stage research with respect to platform improvements and costs of filing, prosecution and maintenance of Intrexon's patents.

The Company paid Intrexon a technology access fee of $10 million in cash in October 2015 and will reimburse Intrexon for all research and development costs. Subject to certain expense allocations and other offsets provided in the GvHD Agreement, the GvHD Agreement also provides for equal sharing of the profits derived from the sale of the Products.

During the first 24 months after September 28, 2015, the GvHD Agreement may be terminated by (i) either party in the event of a material breach by the other, except for the failure of the other party to use diligent efforts or to

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

8. Commitments and Contingencies (Continued)

comply with any diligence obligations set forth in the GvHD Agreement and (ii) Intrexon under certain circumstances if the Company assigns its rights under the GvHD Agreement without Intrexon's consent. Following such twenty-four month period, Intrexon may also terminate the GvHD Agreement if the Company elects not to pursue the development of the GvHD Program identified by Intrexon that is a "Superior Therapy," as such term is defined in the GvHD Agreement. Also following such period, the Company may voluntarily terminate the GvHD Agreement upon 90 days' written notice to Intrexon.

Upon termination of the GvHD Agreement, the Company may continue to develop and commercialize any Product that, at the time of termination:

- is being commercialized by the Company,
- has received regulatory approval,
- is a subject of an application for regulatory approval that is pending before the applicable regulatory authority, or
- is the subject of at least an ongoing Phase 2 clinical trial (in the case of a termination by Intrexon due to a Company uncured breach or a voluntary termination by the Company), or an ongoing Phase 1 clinical trial (in the case of a termination by the Company due to an Intrexon uncured breach or a termination by Intrexon following an unconsented assignment by the Company or the Company's election not to pursue development of a Superior Therapy).

The Company's obligation to pay 50% of net profits or revenue with respect to these "retained" products will survive termination of the GvHD Agreement.

The Company has determined that the rights acquired in the GvHD Agreement represent in-process research and development with no alternative future use. Accordingly, the Company recorded a charge of $10.0 million to research and development expense in 2015.

License Agreement—The University of Texas MD Anderson Cancer Center

On January 13, 2015, the Company, together with Intrexon, entered into a License Agreement, or the MD Anderson License, with The University of Texas MD Anderson Cancer Center, or MD Anderson. Pursuant to the MD Anderson License, the Company and Intrexon hold an exclusive, worldwide license to certain technologies owned and licensed by MD Anderson including technologies relating to novel chimeric antigen receptor (CAR) T cell therapies, non-viral gene transfer systems, genetic modification and/or propagation of immune cells and other cellular therapy approaches, Natural Killer, or NK Cells and T cell receptors, or TCR's arising from the laboratory of Laurence Cooper, M.D., Ph.D., who became the Chief Executive Officer of the Company on May 7, 2015 and was formerly a tenured professor of pediatrics at MD Anderson and now currently a visiting scientist under that institution's policies, as well as either co-exclusive or non-exclusive licenses under certain related technologies.

Pursuant to the terms of the MD Anderson License, MD Anderson received consideration consisting of $50 million in shares of the Company's common stock (or 10,124,561 shares), and $50 million in shares of Intrexon's common stock, in each case based on a trailing 20 day volume weighted average of the closing price of the Company's and Intrexon's common stock ending on the date prior to the announcement of the entry into the MD Anderson License, collectively referred to as the License Shares, pursuant to the terms of the License Shares Securities Issuance Agreement described below. The License Shares were issued to MD Anderson on March 11, 2015 pursuant to the terms of the MD Anderson License.

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

8. Commitments and Contingencies (Continued)

On January 9, 2015, in order to induce MD Anderson to enter into the MD Anderson License on an accelerated schedule, the Company and Intrexon entered into a letter agreement, or the Letter Agreement, pursuant to which MD Anderson received consideration of $7.5 million in shares of the Company's common stock (or 1,597,602 shares), and $7.5 million in shares of Intrexon's common stock, in each case based on a trailing 20 day volume weighted average of the closing price of the Company's and Intrexon's common stock ending on the date prior to the execution of the Letter Agreement, collectively referred to as the Incentive Shares, in the event that the MD Anderson License was entered into on or prior to 8:00 am Pacific Time on January 14, 2015. The Incentive Shares were issued to MD Anderson on March 11, 2015 pursuant to the terms of the Incentive Shares Securities Issuance Agreement described below.

On August 17, 2015, the Company, Intrexon and MD Anderson entered into a research and development agreement, or the Research and Development Agreement, to formalize the scope and process for the transfer by MD Anderson, pursuant to the terms of the MD Anderson License, of certain existing research programs and related technology rights, as well as the terms and conditions for future collaborative research and development of new and ongoing research programs.

Pursuant to the Research and Development Agreement, the Company, Intrexon and MD Anderson have agreed to form a joint steering committee that will oversee and manage the new and ongoing research programs. As provided under the MD Anderson License, the Company will provide funding for research and development activities in support of the research programs under the Research and Development Agreement for a period of three years and in an amount of no less than $15 million and no greater than $20 million per year. During the year ended December 31, 2015, the Company made three quarterly payments totaling an aggregate of $11.25 million under this arrangement. As of December 31, 2015, MD Anderson has used $911 thousand to offset costs incurred pursuant to the MD Anderson License and the Research and Development Agreement. The net balance of $10.3 million is included in other current assets at December 31, 2015.

The term of the MD Anderson License expires on the last to occur of (a) the expiration of all patents licensed thereunder, or (b) the twentieth anniversary of the date of the License; provided, however, that following the expiration of the term of the MD Anderson License, the Company and Intrexon shall then have a fully-paid up, royalty free, perpetual, irrevocable and sublicensable license to use the licensed intellectual property thereunder. After ten years from the date of the MD Anderson License and subject to a 90-day cure period, MD Anderson will have the right to convert the MD Anderson License into a non-exclusive license if the Company and Intrexon are not using commercially reasonable efforts to commercialize the licensed intellectual property on a case-by-case basis. After five years from the date of the MD Anderson License and subject to a 180-day cure period, MD Anderson will have the right to terminate the MD Anderson License with respect to specific technology(ies) funded by the government or subject to a third party contract if the Company and Intrexon are not meeting the diligence requirements in such funding agreement or contract, as applicable. MD Anderson may also terminate the agreement with written notice upon material breach by the Company and Intrexon, if such breach has not been cured within 60 days of receiving such notice. In addition, the MD Anderson License will terminate upon the occurrence of certain insolvency events for both the Company and Intrexon and may be terminated by the mutual written agreement of the Company, Intrexon and MD Anderson.

In connection with the License and the issuance of the License Shares and the Incentive Shares, on January 13, 2015, the Company and MD Anderson entered into a Registration Rights Agreement, or the Registration Rights Agreement, pursuant to which the Company agreed to file a "resale" registration statement, or the Registration Statement, registering the resale of the License Shares, the Incentive Shares and any other shares of the Company's common stock held by MD Anderson on the date that the Registration Statement is filed Under the

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

8. Commitments and Contingencies (Continued)

Registration Rights Agreement, the Company is obligated to maintain the effectiveness of the Registration Statement until all securities therein are sold or are otherwise can be sold pursuant to Rule 144, without any restrictions. A prospectus supplement under the Company's already effective registration statement on Form S-3 (File No. 333-201826), was filed on April 1, 2015 in satisfaction of the Company's obligations under the Registration Rights Agreement.

The Company has determined that the rights acquired in the MD Anderson License represent in process research and development with no alternative future use. Accordingly, the Company recorded a charge of $67.3 million to research and development expense, as included in the statement of operations for the year ended December 31, 2015, representing the fair value of the 11,722,163 shares of its common stock on the date the MD Anderson License was executed.

Ares Trading License and Collaboration Agreement

On March 27, 2015, the Company and Intrexon signed a worldwide License and Collaboration Agreement, or the Ares Trading Agreement, with Ares Trading S.A. or "Ares Trading", a subsidiary of the biopharmaceutical business of Merck KGaA, Darmstadt, Germany, through which the parties established a collaboration for the research and development and commercialization of certain products for the prophylactic, therapeutic, palliative or diagnostic use for cancer in humans.

Under the collaboration, Ares Trading will elect CAR-T targets, of which two have been selected during 2015, and for which Ares Trading will provide certain research funding. The Company is responsible for certain research and development expenditures. Once these candidates reach investigational new drug (IND) stage, the programs will be transferred to Ares Trading for clinical development and commercialization. The Company expects to perform multiple preclinical development programs, each consisting of the development of one product candidate, pursuant to the agreement. The Company and Intrexon will also independently conduct research and development on other CAR-T candidates, with Ares Trading having the opportunity during clinical development to opt-in.

Intrexon is entitled to receive $5.0 million payable in equal quarterly installments over two years for each identified product candidate, which will be used to fund discovery work. The Company will be responsible for costs exceeding the quarterly installments and all other costs of the preclinical research and development.

Ares Trading paid a non-refundable upfront fee of $115.0 million to Intrexon as consideration for entry into the Ares Trading Agreement. Pursuant to the ECP Amendment, the Company was entitled to receive 50% of the upfront fee, or $57.5 million, which we received from Intrexon in July 2015.

The Ares Trading Agreement provides for up to $413.0 million of potential payments for certain development and commercial milestones for each product candidate, and royalties ranging from the lower-single digits to the low-teens of net sales derived from the sale of products developed under agreement. The Ares Trading Agreement also provides for up to $50.0 million of payments upon the achievement of certain technical milestones. Intrexon will pay 50% of all milestone and royalty payments that it receives under the Ares Trading Agreement to the Company pursuant to the ECP Amendment.

The term of the Ares Trading Agreement commenced in May 2015 and may be terminated by either party in the event of a material breach as defined in the agreement and may be terminated voluntarily by Ares Trading upon 90 days written notice to the Company.

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

8. Commitments and Contingencies (Continued)

The Company considered FASB Accounting Standards Codification 605-25, *Multiple-Element Arrangements* , in evaluating the appropriate accounting for the Ares Trading Agreement. In accordance with this guidance, the Company identified the license and research and development services as the Company's deliverables in the arrangement. The Company concluded that the license does not have standalone value from the research and development services. Accordingly, the Ares Trading Agreement is accounted for by the Company as a single unit of accounting. The $57.5 million upfront payment received by the Company was recorded as deferred revenue and is being recognized over the estimated period of performance of the research and development services currently estimated to be 9 years, beginning with the commencement of the research and development services. During the twelve months ended December 31, 2015, the Company recognized $3.2 million of revenue related to the Ares Trading Agreement. The remaining balance of deferred revenue associated with the upfront payment was $54.3 million, of which $6.4 million is current and $47.9 million is classified as long term at December 31, 2015.

License Agreements with DEKK-Tec, Inc. and Southern Research Institute

On October 15, 2004, the Company entered into a license agreement with DEKK-Tec, Inc., or DEKK-Tec, pursuant to which it was granted an exclusive, worldwide license for palifosfamide. All of the Company's rights and obligations under the DEKK-Tec license agreement was assigned to Predictive Therapeutics, Ltd., in the first quarter of 2016, with the exception of the Company's obligation under a stock option to acquire 13,808 shares of the Company's common stock at an exercise price of $0.02 per share, which remains outstanding in accordance with the terms.

On February 5, 2007, the Company exercised an option to enter into an exclusive license agreement with Southern Research Institute, or SRI, for certain isophosphoramide mustard analogs. Under the license agreement, the Company was required to remit minimum annual royalty payments of $25 thousand until the first commercial sale of a licensed product. These payments were made for the years ended December 31, 2015, 2014, and 2013. All of the Company's remaining obligations under the SRI license agreement were assigned to Predictive Therapeutics, Ltd., in the first quarter of 2016.

License Agreement with Predictive Therapeutics, Ltd.

On November 12, 2015, the Company entered into a License Agreement with Predictive Therapeutics, Ltd., or Predictive. Pursuant to the License Agreement, the Company granted Predictive an exclusive license to develop and commercialize palifosfamide.

In exchange, the Company received an upfront payment of $250 thousand and is entitled to receive additional payments of up to $12.8 million in development-and sales-based milestones, single digit royalty payments on net sales of palifosfamide, once commercialized, and a percentage of any sublicense revenues generated by Predictive. Predictive will be responsible for all costs related to the development, manufacturing and commercialization of palifosfamide.

The $250 thousand upfront payment received in November 2015 is being amortized over the period of the Company's research and development effort related to transitional services. There are certain deliverables that are included in the License Agreement including transfer of intellectual property and prior research and development results, which are estimated by management to be completed by June 30, 2016. Accordingly, the Company has recorded $50 thousand in revenue during the twelve months ended December 31, 2015. The remaining deferred revenue balance of $200 thousand at December 31, 2015 has been classified as current. In accordance with the License Agreement with Predictive, the Company is no longer obligated to continue their

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

8. Commitments and Contingencies (Continued)

research and development efforts beyond the transitional services. In the first quarter of 2016, all of the Company's rights and obligations under the DEKK-Tec and SRI license agreements were assigned to Predictive Therapeutics, Ltd., with the exception of the Company's obligation to DEKK-Tec under a stock option to acquire 13,808 shares of the Company's common stock at an exercise price of $0.02 per share, which remains outstanding in accordance with the terms.

Patent and Technology License Agreement—The University of Texas MD Anderson Cancer Center and the Texas A&M University System.

On August 24, 2004, the Company entered into a patent and technology license agreement with MD Anderson, which the Company refers to, collectively, as the Licensors. Under this agreement, the Company was granted an exclusive, worldwide license to rights (including rights to U.S. and foreign patent and patent applications and related improvements and know-how) for the manufacture and commercialization of two classes of organic arsenicals (water- and lipid-based) for human and animal use. The class of water-based organic arsenicals includes darinaparsin.

The Company issued options to purchase 50,222 shares outside of the Company's stock option plans following the successful completion of certain clinical milestones, of which 37,666 have vested. The remaining 12,556 shares will vest upon enrollment of the first patient in a multi-center pivotal clinical trial i.e. a human clinical trial intended to provide the substantial evidence of efficacy necessary to support the filing of an approvable New Drug Application, or NDA. In addition, the Licensors are entitled to receive certain milestone payments. The Company may be required to make additional payments upon achievement of certain other milestones in varying amounts which on a cumulative basis could total up to an additional $4.5 million. In addition, the Licensors are entitled to receive single digit percentage royalty payments on sales from a licensed product and will also be entitled to receive a portion of any fees that the Company may receive from a possible sublicense under certain circumstances.

Collaboration Agreement with Solasia Pharma K.K.

On March 7, 2011, the Company entered into a License and Collaboration Agreement with Solasia Pharma K.K., or Solasia. Pursuant to the License and Collaboration Agreement, the Company granted Solasia an exclusive license to develop and commercialize darinaparsin in both IV and oral forms and related organic arsenic molecules, in all indications for human use in a pan- Asian/Pacific territory comprised of Japan, China, Hong Kong, Macau, Republic of Korea, Taiwan, Singapore, Australia, New Zealand, Malaysia, Indonesia, Philippines and Thailand.

As consideration for the license, the Company received an upfront payment of $5.0 million to be used exclusively for further clinical development of darinaparsin outside of the pan-Asian/Pacific territory, and will be entitled to receive additional payments of up to $32.5 million in development-based milestones and up to $53.5 million in sales-based milestones. The Company will also be entitled to receive double digit royalty payments from Solasia based upon net sales of licensed products in the applicable territories, once commercialized, and a percentage of sublicense revenues generated by Solasia. Under the License and Collaboration Agreement, the Company provided Solasia with drug product to conduct clinical trials. These transfers were accounted for as a reduction of research and development costs and an increase in collaboration receivables. The agreement provides that Solasia will be responsible for the development and commercialization of darinaparsin in the pan-Asian/Pacific territory.

On July 31, 2014, the Company entered into an amendment and restatement of the License and Collaboration Agreement granting Solasia an exclusive worldwide license to develop and commercialize darinaparsin, and

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

8. Commitments and Contingencies (Continued)

related organoarsenic molecules, in both intravenous and oral forms in all indications for human use. In exchange, the Company will be eligible to receive from Solasia development-and sales-based milestones, a royalty on net sales of darinaparsin, once commercialized, and a percentage of any sublicense revenues generated by Solasia.

Solasia will be responsible for all costs related to the development, manufacturing and commercialization of darinaparsin. The Company's Licensors, as defined in the agreement, will receive a portion of all milestone and royalty payments made by Solasia to the Company in accordance with the terms of the Company's license agreement with the Licensors.

The $5.0 million upfront payment received in March 2011 is being amortized over the period of the Company's research and development effort. The Company originally estimated this period to be 75 months. In accordance with the amended and restated License and Collaboration Agreement with Solasia, the Company is no longer obligated to continue their research and development efforts in connection with the upfront payment. However, there are certain deliverables that are included in the amended and restated License and Collaboration Agreement including transfer of intellectual property and prior research and development results, which were originally estimated by management to be completed by March 31, 2015 when the amended and restated License and Collaboration Agreement was signed in July 2014. Management subsequently reassessed the period of performance related to the remaining transitional services to be completed under the amended and restated License and Collaboration Agreement and determined that the services are now expected to be completed by March 31, 2016. Accordingly, the Company has recorded $1.1 million in revenue during the twelve months ended December 31, 2015. The remaining deferred revenue balance of $272 thousand at December 31, 2015 has been classified as current.

License Agreement with Baxter Healthcare Corporation

On November 3, 2006, the Company entered into a definitive Asset Purchase Agreement for indibulin and a License Agreement to proprietary nanosuspension technology with affiliates of Baxter Healthcare S.A. The purchase included the entire indibulin intellectual property portfolio as well as existing drug substance and capsule inventories. The terms of the Asset Purchase Agreement included an upfront cash payment and an additional payment for existing inventory. During each of the years ended December 31, 2015, 2014, and 2013, the installment of $250 thousand were paid and expensed.

CRO Services Agreement with Novella Clinical, Inc.

On December 4, 2008, the Company entered into a Master Clinical Research Organization Services Agreement with Novella Clinical, Inc., or Novella, under which Novella provides clinical research organization, or CRO, services in support of the Company's clinical trials. The work order for the newest trial being conducted by Novella was signed on November 2, 2012. Novella was entitled to cumulative payments of up to $790 thousand under these arrangements, which is payable in varying amounts upon Novella achieving specified milestones.

On August 18, 2014 and November 6, 2014, the Company signed two respective amendments of the Master Clinical Research Organization Services Agreement with Novella. The amendments reflect the removal of data management, statistical and clinical study report services, as well as a change in the timeline and scope of clinical trial support. During the year ended December 31, 2014, three clinical milestones were met and expensed totaling $236 thousand. The remaining milestone of $10 thousand was met and expensed during the quarter ended March 31, 2015. There are no remaining obligations under this agreement.

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

9. Warrants

The Company has issued both warrants that are accounted for as liabilities and warrants that are accounted for as equity instruments.

The Company follows accounting standards that provide guidance in assessing whether an equity-issued financial instrument is indexed to an entity's own stock for purposes of determining whether a financial instrument should be treated as a derivative and classified as a liability. Accounting standards require that liability classified warrants be recorded at their fair value at each financial reporting period and the resulting gain or loss be recorded as other income (expense) in the Statements of Operations. Fair value is measured using the binomial valuation model.

Liability-Classified Warrants

In connection with a December 2009 public offering, the Company issued warrants to purchase an aggregate of 8,206,520 shares of common stock, including the investor warrants and 464,520 warrants issued to the Underwriters. The warrants had a 5 year term and expired in December 2014. Subject to certain exceptions, these warrants provided anti-dilution protection in the event the Company should subsequently issue common stock or common stock equivalents at a price less than the exercise price of the warrants then in effect.

The Company assessed whether the Warrants required accounting as derivatives. The Company determined that the warrants were not indexed to the Company's own stock in accordance with FASB Accounting Standards Codification, *Derivatives and Hedging* (Topic 815). As such, the Company concluded the warrants did not meet the scope exception for determining whether the instruments required accounting as derivatives and should be classified in liabilities.

On December 31, 2013, the liability-classified warrants were valued at $11.8 million using a Binomial/Monte Carlo valuation model. The decrease in the fair value of the warrant liabilities of $1.2 million for the year ended December 31, 2013 was recorded as Other income, net in the Statements of Operations. In December 2014, the company recognized a gain of $195 thousand on the expiration of liability-classified warrants.

The following pricing assumptions were used in the Binomial/Monte Carlo valuation model at December 31, 2013:

	December 31, 2013
Risk-free interest rate	0.13%
Expected life in years	0.94
Expected volatility	80%
Expected dividend yield	0

In connection with its 2009 private placement, the Company issued warrants to purchase an aggregate of 2,910,954 shares of common stock (including 138,617 warrants issued to the placement agents) which were exercisable immediately. The warrants had an exercise price of $2.04 per share and a 5 year term. The fair value of the warrants was estimated at $4.2 million using a Black-Scholes model with the following assumptions: expected volatility of 105%, risk free interest rate of 2.41%, expected life of 5 years and no dividends. The fair value of the warrants was recorded in the equity section of the balance sheet. In October 2009, 136,986 of these warrants were exercised.

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

9. Warrants (Continued)

During 2013 135,346 warrants were exercised for 112,808 shares of common stock. Of these warrants, all 135,346 were equity-classified; there were no liability-classified warrants exercised.

During 2014 4,004,907 warrants were exercised for 3,725,277 shares of common stock. Of these warrants, 2,249,062 were equity-classified and 1,755,845 were liability-classified warrants. Additionally, 12,329 equity-classified warrants and 6,479,231 liability-classified warrants expired without being exercised.

All remaining warrants have expired during the year ended December 31, 2014 and none are outstanding as of December 31, 2015.

10. Income Taxes

There is no provision for income taxes because the Company has incurred operating losses since inception. The reported amount of income tax expense for the years differs from the amount that would result from applying domestic federal statutory tax rates to pretax losses primarily because of the changes in the valuation allowance. Significant components of the Company's deferred tax assets at December 31, 2015 and 2014 are as follows:

	December 31,	
(in thousands)	**2015**	**2014**
Net operating loss carryforwards	$ 96,215	$ 79,050
Start-up and organizational costs	64,942	38,562
Research and development credit carryforwards	29,564	26,112
Stock compensation	1,997	1,181
Capitalized acquisition costs	10,429	11,376
Deferred revenue	2,695	534
Depreciation	251	208
Other	1,673	1,547
	207,766	158,570
Less valuation allowance	(207,766)	(158,570)
Effective tax rate	$ —	$ —

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. At December 31, 2015, the Company has aggregate net operating loss carryforwards for federal tax purposes of approximately $251 million available to offset future federal taxable income to the extent permitted under the Internal Revenue Code, or IRC, expiring in varying amounts through 2034. Additionally, the Company has approximately $29 million of research and development credits at December 31, 2015, expiring in varying amounts through 2034, which may be available to reduce future taxes.

Under the IRC Section 382, certain substantial changes in the Company's ownership may limit the amount of net operating loss carryforwards that can be utilized in any one year to offset future taxable income. The net operating loss carryforwards for the year ended December 31, 2015 includes approximately $10.2 million resulting from excess tax deductions from stock options. Pursuant to ASC 740, the deferred tax asset relating to excess tax benefits generated from exercises of stock options was not recognized for financial statement purposes.

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

10. Income Taxes (Continued)

Section 382 of the IRC provides limits to which a corporation that has undergone a change in ownership (as defined) can utilize any net operating loss, or NOL, and general business tax credit carryforwards it may have. The Company commissioned an analysis to determine whether Section 382 could limit the use of its carryforwards in this manner. After completing the analysis, it was determined an ownership change had occurred in February 2007. As a result of this change, the Company's NOL's and general business tax credits from February 23, 2007 and prior would be completely limited under IRC Section 382. The deferred tax assets related to NOL's and general business credits have been reduced by $11.2 million and $636 thousand, respectively, as a result of the change. The Company updated the IRC Section 382 analysis through December 31, 2014. It was determined a change of ownership occurred on February 28, 2011. The Company's NOL's were not further limited as a result of the change.

The Company has provided a valuation allowance for the full amount of these net deferred tax assets, since it is more likely than not that these future benefits will not be realized. However, these deferred tax assets may be available to offset future income tax liabilities and expenses. The valuation allowance increased by $49.2 million in 2015 primarily due to net operating loss carryforwards and the increase in research and development credits.

Income taxes using the federal statutory income tax rate differ from the Company's effective tax rate primarily due to the change in the valuation allowance on deferred tax assets.

A reconciliation of income tax expense (benefit) at the statutory federal income tax rate and income taxes as reflected in the financial statements is as follows:

	Year Ended December 31,		
(in thousands)	**2015**	**2014**	**2013**
Federal income tax at statutory rates	34%	34%	34%
State income tax, net of federal tax benefit	5%	2%	4%
Research and development credits	3%	3%	9%
Stock compensation	-1%	-4%	-2%
Other	0%	-4%	1%
Increase in valuation allowance	-41%	-31%	-46%
Effective tax rate	0%	0%	0%

The Company adopted ASC740, "Accounting for Uncertain Tax Positions" on January 1, 2007. ASC740 clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements in accordance with FASB Statement No. 109, "Accounting for Income Taxes." ASC 740 prescribes a recognition threshold and measurement of a tax position taken or expected to be taken in a tax return. The Company did not establish any

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

10. Income Taxes (Continued)

additional reserves for uncertain tax liabilities upon adoption of ASC 740. A summary of the company's adjustments to its uncertain tax positions in the years ended December 31, 2015, 2014, and 2013 are as follows:

(in thousands)	
Balance at December 31, 2012	$ 275
Increase/Decrease for tax positions related to the current year	—
Increase/Decrease for tax positions related to prior years	(37)
Decrease for settlements with applicable taxing authorities	—
Decrease for lapses of statute of limitations	—
Balance at December 31, 2013	$ 238
Increase/Decrease for tax positions related to the current year	—
Increase/Decrease for tax positions related to prior years	—
Decrease for settlements with applicable taxing authorities	—
Decrease for lapses of statute of limitations	—
Balance at December 31, 2014	$ 238
Increase/Decrease for tax positions related to the current year	—
Increase/Decrease for tax positions related to prior years	—
Decreases for settlements with applicable taxing authorities	—
Decrease for previous year's lapses of statute of limitations	(20)
Decrease for impact of §382 limitations	(218)
Decrease for lapses of statute of limitations	—
Balance at December 31, 2015	$ —

The Company has not recognized any interest and penalties in the statement of operations because of the Company's net operating losses and tax credits that are available to be carried forward. When necessary, the Company will account for interest and penalties related to uncertain tax positions as part of its provision for federal and state income taxes. The Company does not expect the amounts of unrecognized benefits will change significantly within the next twelve months.

The Company is currently open to audit under the statute of limitations by the Internal Revenue Service and state jurisdictions for the years ended December 31, 1999 through 2015.

11. Preferred Stock and Stockholders' Equity

On April 26, 2006, the date of the Company's annual stockholders meeting that year, the shareholders approved the adoption of an Amended and Restated Certificate of Incorporation pursuant to which the Company has 280,000,000 shares of authorized capital stock, of which 250,000,000 shares are designated as common stock (par value $.001 per share), and 30,000,000 shares are designated as preferred stock (par value $.001 per share), which the Company refers to as the Preferred Stock.

Common Stock

On October 29, 2013, pursuant to an underwriting agreement between the Company and J. P. Morgan Securities LLC, as representative of the several underwriters named therein, the Company completed the sale of an aggregate 16,445,000 shares of the Company's common stock at a price of $3.50 per share in a public offering. The total gross proceeds resulting from this public offering were approximately $57.6 million, before deducting selling commissions and expenses (see Note 2, Financings).

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

11. Preferred Stock and Stockholders' Equity (Continued)

On February 3, 2015, the Company entered into an underwriting agreement with J.P. Morgan Securities LLC, as representative of the several underwriters named therein, relating to the issuance and sale of 10,000,000 shares of our common stock. The price to the public in the offering was $8.75 per share, and the underwriters agreed to purchase the shares from the Company pursuant to the underwriting agreement at a purchase price of $8.225 per share. Under the terms of the underwriting agreement, the Company also granted the underwriters an option, exercisable for 30 days, to purchase up to an additional 1,500,000 shares of common stock at a purchase price of $8.225 per share. The offering was made pursuant to the Company's effective registration statement on Form S-3 (SEC File No. 333-201826) previously filed with the SEC, and a prospectus supplement thereunder. The underwriters purchased the 10,000,000 shares and the additional 1,500,000 shares on February 9 and 17, 2015, respectively. The net proceeds from the offering were approximately $94.3 million after deducting underwriting discounts and estimated offering expenses paid by the Company.

On January 13, 2015, the Company, together with Intrexon, entered into the MD Anderson License. Pursuant to the terms of the MD Anderson License, MD Anderson received consideration of 11,722,163 shares of the Company's common stock (see Note 8, Commitments and Contingencies).

Preferred Stock

The Company's Board of Directors are authorized to designate any series of Preferred Stock, to fix and determine the variations in relative rights, preferences, privileges and restrictions as between and among such series.

12. Stock Option Plan

The Company adopted the 2003 Stock Option Plan, or the 2003 Plan, in 2003, and it was approved by the Company's stockholders on December 21, 2004. Upon approval of the 2012 Equity Incentive Plan, no additional stock awards may be granted under the 2003 Plan.

The Company adopted the 2012 Equity Incentive Plan, or the 2012 Plan, in May 2012, under which the Company initially reserved for the issuance of 4,000,000 shares of its common stock. The 2012 Plan was approved by the Company's stockholders on June 20, 2012. On June 18, 2014, the date of the Company's annual stockholders meeting, the Company's stockholders approved an amendment to the 2012 Plan increasing the total shares reserved by 5,000,000 shares, for a total of 9,000,000 shares.

As of December 31, 2015, the Company had outstanding options issued to its employees to purchase up to 2,420,801 shares of the Company's common stock, to its directors to purchase up to 927,500 shares of the Company's common stock, as well as options to consultants in connection with services rendered to purchase up to 133,167 shares of the Company's common stock.

Stock options to employees generally vest ratably over three years and have contractual terms of ten years. Stock options to directors generally vest ratably over one or three years and have contractual terms of ten years. Stock options are valued using the Black-Scholes option pricing model and compensation is recognized based on such fair value over the period of vesting on a straight-line basis. The Company has also reserved an aggregate of 26,364 additional shares for issuance under options granted outside of the 2003 Stock Option Plan.

Proceeds from the option exercises during the years ended December 31, 2015, 2014, and 2013 amounted to $4.6 million, $1.4 million and $956 thousand respectively. The intrinsic value of these options amounted to $23.8 million, $2.6 million and $1.4 million for years ended December 31, 2015, 2014 and 2013, respectively.

ZIOPHARM Oncology, Inc.

NOTES TO FINANCIAL STATEMENTS

12. Stock Option Plan (Continued)

Transactions under the Plan for the years ending December 31, 2015, 2014, and 2013 were as follows:

(in thousands, except share and per share data)	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Contractual Term (Years)	Aggregate Intrinsic Value
Outstanding, December 31, 2012	7,147,303	$ 4.11		
Granted	2,649,900	3.28		
Exercised	(570,168)	1.68		
Cancelled	(2,479,732)	4.58		
Outstanding, December 31, 2013	6,747,303	3.81		
Granted	1,099,300	4.95		
Exercised	(613,138)	2.26		
Cancelled	(727,801)	4.54		
Outstanding, December 31, 2014	6,505,664	4.07		
Granted	427,800	10.47		
Exercised	(3,249,160)	3.95		
Cancelled	(202,835)	4.36		
Outstanding, December 31, 2015	3,481,469	$ 4.96	6.98	$ 12,601
Vested and unvested expected to vest at December 31, 2015	3,443,414	$ 4.24	5.84	$ 12,463
Options exercisable, December 31, 2015	2,120,834	$ 4.24	5.84	$ 8,622
Options exercisable, December 31, 2014	3,781,162	$ 4.10	5.80	$ 4,130
Options available for future grant	2,768,230			

At December 31, 2015, total unrecognized compensation costs related to non-vested stock options outstanding amounted to $5.3 million. The cost is expected to be recognized over a weighted-average period of 1.55 years.

Restricted Stock

In May, June and December 2015, the Company issued 1,000,000, 50,000 and 403,083 shares of restricted stock to its employees, respectively, which vest ratably in annual installments over three years, commencing on the first anniversary of the grant date. In September and December 2015, the Company issued 4,186 and 133,305 shares of restricted stock to its non-employee directors, which vest in their entirety at December 31, 2015 and on the one year anniversary of the grant date respectively. In December 2014, the Company issued 66,828 shares of restricted stock to its non-employee directors, which vest in their entirety on the one year anniversary of the grant date. In December 2013, the Company issued 75,272 shares of restricted stock to its non-employee directors, which vested in their entirety on the one year anniversary of the grant date.

In September and December 2015, the Company repurchased 7,669 and 16,709 shares at average prices of $11.57 and $8.31, respectively to cover payroll taxes. In January, February and December 2014, the Company repurchased 16,031, 14,600 and 81,702 shares at average prices of $4.37, $4.40 and $5.04 per share, respectively, to cover payroll taxes. In January, March, May and December 2013, the Company repurchased 52,018, 5,400, 2,623, and

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NOTES TO FINANCIAL STATEMENTS

12. Stock Option Plan (Continued)

56,683 shares at average prices of $4.28, $4.50, $1.65 and $4.37 per share, respectively, to cover payroll taxes. A summary of the status of non-vested restricted stock as of December 31, 2015, 2014 and 2013 is as follows:

	Number of Shares	Weighted-Average Grant Date Fair Value
Non-vested, December 31, 2012	733,739	$ 4.37
Granted	75,272	4.34
Vested	(292,399)	4.31
Cancelled	(163,747)	4.42
Non-vested, December 31, 2013	352,865	4.38
Granted	66,828	5.07
Vested	(253,835)	4.38
Cancelled	(21,350)	4.41
Non-vested, December 31, 2014	144,508	4.70
Granted	1,590,574	9.01
Vested	(148,694)	4.88
Cancelled	—	—
Non-vested, December 31, 2015	1,586,388	$ 9.00

As of December 31, 2015, there was $12.1 million of total unrecognized stock-based compensation expense related to non-vested restricted stock arrangements. The expense is expected to be recognized over a weighted-average period of 1.73 years.

13. Employee Benefit Plan

The Company sponsors a qualified 401(k) Retirement Plan under which employees are allowed to contribute certain percentages of their pay, up to the maximum allowed under Section 401(k) of the IIRC. The Company may make contributions to this plan at its discretion. The Company contributed approximately $47 thousand, $79 thousand, and $139 thousand to this plan during the years ended December 31, 2015, 2014, and 2013, respectively.

14. Selected Quarterly Information (Unaudited)
(in thousands, except per share amount)

Year Ended December 31, 2015	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Revenue	$ 272	$ 272	$ 1,869	$ 1,919
Total operating expenses	78,499	14,497	20,035	11,401
Loss from operations	(78,227)	(14,225)	(18,166)	(9,482)
Change in fair value of warrants	—	—	—	—
Net (loss)	(78,231)	(14,211)	(18,170)	(9,476)
Loss per share, basic and diluted	$ (0.69)	$ (0.11)	$ (0.14)	$ (0.07)

Year Ended December 31, 2014	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Revenue	$ 200	$ 200	$ 633	$ 340
Total operating expenses	9,984	11,377	12,575	10,936
Loss from operations	(9,784)	(11,177)	(11,942)	(10,596)
Change in fair value of warrants	82	5,600	5,847	194
Net (loss)	(9,711)	(5,576)	(6,093)	(10,401)
Loss per share, basic and diluted	$ (0.10)	$ (0.06)	$ (0.06)	$ (0.09)

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Exhibit No.	Description of Document
2.1	Agreement and Plan of Merger among the Registrant (formerly "EasyWeb, Inc."), ZIO Acquisition Corp. and ZIOPHARM, Inc., dated August 3, 2005 (incorporated by reference to Exhibit 10.1 to the Registrant's Form 8-K, SEC File No. 000-32353, filed August 9, 2005).
3.1	Amended and Restated Certificate of Incorporation, as filed with the Delaware Secretary of State on April 26, 2006 (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K, SEC File No. 000-32353, filed April 26, 2006).
3.2	Certificate of Merger dated September 13, 2005, relating to the merger of ZIO Acquisition Corp. with and into ZIOPHARM, Inc. (incorporated by reference to Exhibit 3.1 to the Registrant's Form 8-K, SEC File No. 000-32353, filed September 19, 2005).
3.3	Certificate of Ownership of the Registrant (formerly "EasyWeb, Inc.") dated as of September 14, 2005, relating the merger of ZIOPHARM, Inc. with and into the Registrant, and changing the Registrant's corporate name from EasyWeb, Inc. to ZIOPHARM Oncology, Inc. (incorporated by reference to Exhibit 3.2 to the Registrant's Form 8-K, SEC File No. 000-32353, filed September 19, 2005).
3.4	Bylaws, as amended to date (incorporated by reference to Exhibit 3.3 to the Registrant's Form 8-K, SEC File No. 000-32353, filed September 19, 2005).
4.1	Specimen common stock certificate (incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form SB-2, SEC File No. 333-129020, filed October 14, 2005).
4.2	Form of Indenture between the registrant and one or more trustees to be named (incorporated by reference to Exhibit 4.4 to the Registrant's Registration Statement on Form S-3ASR, SEC File No. 333-201826, filed February 2, 2015).
4.3	Form of Common Stock Warrant Agreement and Warrant Certificate (incorporated by reference to Exhibit 4.5 to the Registrant's Registration Statement on Form S-3ASR, SEC File No. 333-201826, filed February 2, 2015).
4.4	Form of Preferred Stock Warrant Agreement and Warrant Certificate (incorporated by reference to Exhibit 4.6 to the Registrant's Registration Statement on Form S-3ASR, SEC File No. 333-201826, filed February 2, 2015).
4.5	Form of Debt Securities Warrant Agreement and Warrant Certificate (incorporated by reference to Exhibit 4.7 to the Registrant's Registration Statement on Form S-3ASR, SEC File No. 333-201826, filed February 2, 2015).
4.6	Option for the Purchase of common stock dated October 15, 2004 and issued to DEKK-Tec, Inc. (incorporated by reference to Exhibit 4.5 to the Registrant's Annual Report on Form 10-KSB, SEC File No. 000-32353, filed March 20, 2006).
4.7	Form of Option for the Purchase of Shares of common stock dated August 30, 2004 and issued to The University of Texas M. D. Anderson Cancer Center (incorporated by reference to Exhibit 4.6 to the Registrant's Annual Report on Form 10-KSB, SEC File No. 000-32353, filed March 20, 2006).
4.8	Schedule identifying material terms of Options for the Purchase of Shares of common stock in the form filed as Exhibit 4.6 to this Report. (incorporated by reference to Exhibit 4.7 to the Registrant's Annual Report on Form 10-KSB, SEC File No. 000-32353, filed March 20, 2006).
10.1	ZIOPHARM Oncology, Inc. Amended and Restated 2003 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to the Registrant's Annual Report on Form 10-K SEC File No. 001-33038 filed March 1, 2011).

Exhibit No.	Description of Document
10.2	Form of Incentive Stock Option Agreement granted under the Registrant's 2003 Stock Option Plan (incorporated by reference to Exhibit 10.7 to the Registrant's Annual Report on Form 10-KSB, SEC File No. 000-32353, filed March 20, 2006).
10.3	Form of Employee Non-Qualified Stock Option Agreement granted under the Registrant's 2003 Stock Option Plan (incorporated by reference to Exhibit 10.8 to the Registrant's Annual Report on Form 10-KSB, SEC File No. 000-32353, filed March 20, 2006).
10.4	Form of Director Non-Qualified Stock Option Agreement granted under the Registrant's 2003 Stock Option Plan (incorporated by reference to Exhibit 10.9 to the Registrant's Annual Report on Form 10-KSB, SEC File No. 000-32353, filed March 20, 2006).
10.5	Form of Restricted Stock Agreement granted under the Registrant's 2003 Stock Option Plan (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K SEC File No. 001-33038 filed December 18, 2007).
10.6	ZIOPHARM Oncology, Inc. 2012 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K SEC File No. 001-33038 filed June 26, 2012).
10.7	Form of Restricted Stock Agreement Granted Under the ZIOPHARM Oncology, Inc. 2012 Equity Incentive Plan (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K SEC File No. 001-33038 filed June 26, 2012).
10.8	Form of Option Agreement Granted Under the ZIOPHARM Oncology, Inc. 2012 Equity Incentive Plan (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K SEC File No. 001-33038 filed June 26, 2012).
10.9	Employment Agreement dated as of January 8, 2008 by and between the Registrant and Dr. Jonathan Lewis (incorporated by reference to Exhibit 10.6 to the Registrant's Annual Report on Form 10-KSB SEC File No. 001-33038 filed February 21, 2008).
10.10	Extension of Employment Agreement dated as of December 28, 2010 by and between the Registrant and Dr. Jonathan Lewis (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K SEC File No. 001-33038 filed December 28, 2010).
10.11	Extension of Employment Agreement dated as of January 8, 2013 by and between the Registrant and Dr. Jonathan Lewis (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K SEC File No. 001-33038 filed January 8, 2013).
10.12	Amendment and Extension to Employment Agreement dated January 8, 2014 by and between ZIOPHARM Oncology, Inc. and Jonathan Lewis, M.D., Ph.D. (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K SEC File No. 001-33038 filed January 8, 2014).
10.13	Employment Agreement effective September 6, 2011 by and between the Registrant. and Caesar J. Belbel (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K SEC File No. 001-33038 filed September 6, 2011).
10.14	Amendment to Employment Agreement dated January 7, 2014 by and between the Registrant. and Caesar J. Belbel (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K SEC File No. 001-33038 filed January 8, 2014).
10.15	Patent and Technology License Agreement dated August 24, 2004, among ZIOPHARM, Inc. (predecessor to the Registrant), the Board of Regents of the University of Texas System on behalf of the University of Texas M.D. Anderson Cancer Center and the Texas A&M University System (incorporated by reference to Exhibit 10.5 to the Registrant's Registration Statement on Form SB-2, SEC File No. 333-129020, filed October 14, 2005). +

Exhibit No.	Description of Document
10.16	License Agreement dated October 15, 2004, between ZIOPHARM, Inc. (predecessor to the Registrant) and DEKK-Tec, Inc. (incorporated by reference to Exhibit 10.6 to the Registrant's Registration Statement on Form SB-2, SEC File No. 333-129020, filed October 14, 2005). +
10.17	Asset Purchase Agreement dated November 3, 2006 by and among Baxter Healthcare S.A., Baxter International, Inc., Baxter Oncology GmbH and the Registrant (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-QSB, SEC File No. 001-33038, filed November 13, 2006). +
10.18	License Agreement dated November 3, 2006 by and among Baxter Healthcare S.A., Baxter International, Inc. and the Registrant (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-QSB, SEC File No. 001-33038, filed November 13, 2006). +
10.19	Amendment to License Agreement dated September 24, 2009 by and among Baxter Healthcare S.A., Baxter International, Inc. and the Registrant (incorporated by reference to Exhibit 10.16 to the Registrant's Annual Report on Form 10-K, SEC File No. 001-33038, filed March 17, 2010).
10.20	Exclusive Channel Partner Agreement by and between the Registrant and Intrexon Corporation dated as of January 6, 2011 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed January 12, 2011). +
10.21	First Amendment to Exclusive Channel Partner Agreement dated September 13, 2011 by and between the Registrant and Intrexon Corporation (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q, SEC File No. 001-33038, filed May 3, 2012)
10.22	Stock Purchase Agreement by and between the Registrant and Intrexon Corporation dated as of January 6, 2011 (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed January 12, 2011).
10.23	Amendment Stock Purchase Agreement by and between the Registrant and Intrexon Corporation dated as of February 1, 2011 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed February 7, 2011).
10.24	Registration Rights Agreement dated January 12, 2011 by and between the Registrant and Intrexon Corporation (incorporated by reference to Exhibit 10.24 to the Registrant's Annual Report on Form 10-K, SEC File No. 001-33038, filed March 1, 2011).
10.25	Form of Indemnity Agreement for directors and executive officers (incorporated by reference to Exhibit 99.1 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed January 31, 2013).
10.26	Letter Agreement by and among the Registrant, Intrexon Corporation and The University of Texas System Board of Regents on behalf of The University of Texas M.D. Anderson Cancer Center dated as of January 9, 2015 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed January 14, 2015).
10.27	Securities Issuance Agreement by and between the Registrant and The University of Texas System Board of Regents on behalf of The University of Texas M.D. Anderson Cancer Center dated as of January 13, 2015 (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed January 14, 2015).
10.28	Securities Issuance Agreement by and between the Registrant and The University of Texas System Board of Regents on behalf of The University of Texas M.D. Anderson Cancer Center dated as of January 13, 2015 (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed January 14, 2015).
10.29	Registration Rights Agreement by and between the Registrant and The University of Texas System Board of Regents on behalf of The University of Texas M.D. Anderson Cancer Center dated as of January 13, 2015 (incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed January 14, 2015).

Exhibit No.	Description of Document
10.30	License Agreement by and among the Registrant, Intrexon Corporation and The University of Texas System Board of Regents on behalf of The University of Texas M.D. Anderson Cancer Center dated as of January 13, 2015 (incorporated by reference to Exhibit 10.5 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed January 28, 2015).
10.31	License and Collaboration Agreement by and among the Registrant, Intrexon Corporation and ARES TRADING Trading S.A. dated as of March 27, 2015 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed April 2, 2015). +
10.32	Second Amendment to Exclusive Channel Partner Agreement by and between the Registrant and Intrexon Corporation dated as of March 27, 2015 (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed April 2, 2015).
10.33	Employment Agreement by and between the Registrant and Laurence James Neil Cooper, M.D., Ph.D. dated as of May 5, 2015 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed May 7, 2015).
10.34	Amended and Restated Employment Agreement by and between the Registrant and Caesar J. Belbel dated as of June 1, 2015 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed June 2, 2015).
10.35	Research and Development Agreement by and among the Registrant, Intrexon Corporation and The University of Texas M.D. Anderson Cancer Center dated as of August 17, 2015 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed August 21, 2015).
10.36	Exclusive Channel Collaboration Agreement by and between the Registrant and Intrexon Corporation dated September 28, 2015 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, SEC File No. 001-33038, filed October 1, 2015).
23.1	Consent of Independent Registered Public Accounting Firm–RSM US LLP
24.1	Power of Attorney (incorporated by reference to the signature page of this Annual Report on Form 10-K).
31.1	Certification of Chief Executive Officer pursuant to Exchange Act Rule 13a-14(a) or 15(d)-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Accounting Officer pursuant to Exchange Act Rule 13a-14(a) or 15(d)-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Chief Accounting Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

Confidential treatment has been granted as to certain portions of this exhibit pursuant to Rule 406 of the Securities Act of 1933, as amended, or Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statements on Forms S-8 (File Nos. 333-129884, 333-134280, 333-142701, 333-160496, 333-167925, 333-185433 and 333-199304) and Forms S-3 (File Nos. 333-134279, 333-141014, 333-161453, 333-162160, 333-163517, 333-166444, 333-174292, 333-177793, and 333-201826) of ZIOPHARM Oncology, Inc. of our report dated February 24, 2016 relating to our audit of the financial statements and the effectiveness of internal control over financial reporting, which appears in this Annual Report on Form 10-K of ZIOPHARM Oncology, Inc. for the year ended December 31, 2015.

/s/ RSM US LLP

Boston, Massachusetts
February 24, 2016

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER

I, Laurence J.N. Cooper, certify that:

1. I have reviewed this annual report on Form 10-K of ZIOPHARM Oncology, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 24, 2016

/s/ Laurence J.N. Cooper

Laurence J.N. Cooper, M.D., Ph.D.
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER

I, Kevin G. Lafond, certify that:

1. I have reviewed this annual report on Form 10-K of ZIOPHARM Oncology, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 24, 2016

/s/ Kevin G. Lafond

Kevin G. Lafond, Vice President, Chief Accounting Officer and Treasurer (Principal Financial and Accounting Officer)

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of ZIOPHARM Oncology, Inc. (the "Company") on Form 10-K for the year ended December 31, 2015, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Laurence J.N. Cooper, Principal Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

/s/ Laurence J.N. Cooper

Laurence J.N. Cooper, M.D., Ph.D.
Chief Executive Officer
(Principal Executive Officer)
February 24, 2016

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of ZIOPHARM Oncology, Inc. (the "Company") on Form 10-K for the year ended December 31, 2015, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Kevin G. Lafond, Principal Financial and Accounting Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

/s/ Kevin G. Lafond

Kevin G. Lafond, Vice President, Chief Accounting Officer and
Treasurer (Principal Financial and Accounting Officer)
February 24, 2016