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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

(Mark One)

☑ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the Fiscal Year Ended December 31, 2007

OR

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

Commission File Number: 001-31918

IDERA PHARMACEUTICALS, INC.

(Exact name of Registrant as specified in its certificate of incorporation)

Delaware	**04-3072298**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
167 Sidney Street Cambridge, Massachusetts	**02139**
(Address of principal executive offices)	**(Zip Code)**

(617) 679-5500

(Registrant's telephone number, including area code)

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

Title of Class:	**Name of Each Exchange on Which Registered**
Common Stock, $.001 par value (Including Associated Preferred Stock Purchase Rights)	**NASDAQ Global Market**

Securities registered pursuant to Section 12(g) of the Act: None

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 Securities 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 preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to the filing requirements for the past 90 days. 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 the 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 the definitions of "large accelerated filer", "accelerated 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 ☐

(Do not check if a smaller reporting company)

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

The approximate aggregate market value of the voting stock held by non-affiliates of the registrant was $112,169,323 based on the last sale price of the registrant's common stock as reported on the NASDAQ Global Market on June 30, 2007. As of February 29, 2008, the registrant had 21,987,744 shares of common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's Proxy Statement with respect to the Annual Meeting of Stockholders to be held on June 4, 2008 are incorporated by reference into Items 10, 11, 12, 13 and 14 of Part III of this Form 10-K.

IDERA PHARMACEUTICALS, INC.

FORM 10-K

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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements, other than statements of historical fact, included or incorporated in this report regarding our strategy, future operations, collaborations, intellectual property, financial position, future revenues, projected costs, prospects, plans, and objectives of management are forward-looking statements. The words "believes," "anticipates," "estimates," "plans," "expects," "intends," "may," "could," "should," "potential," 'likely," "projects," "continue," "will," and "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We cannot guarantee that we actually will achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. There are a number of important factors that could cause our actual results to differ materially from those indicated or implied by forward-looking statements. These important factors include those set forth below under Part II, Item 1A "Risk Factors." These factors and the other cautionary statements made in this Annual Report on Form 10-K should be read as being applicable to all related forward-looking statements whenever they appear in this Annual Report on Form 10-K. In addition, any forward-looking statements represent our estimates only as of the date that this Annual Report on Form 10-K is filed with the SEC and should not be relied upon as representing our estimates as of any subsequent date. We do not assume any obligation to update any forward-looking statements. We disclaim any intention or obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

PART I.

Item 1. *Business*

Overview

We are engaged in the discovery and development of DNA- and RNA-based drug candidates targeted to Toll-Like Receptors, or TLRs, to treat infectious diseases, autoimmune diseases, cancer, and asthma and allergies, and for use as vaccine adjuvants. Drug candidates are compounds that we are developing and have not been approved for any commercial use. TLRs are specific receptors present in immune system cells that recognize the DNA or RNA of pathogens such as bacteria or viruses and initiate an immune response. Relying on our expertise in DNA and RNA chemistry, we have designed and created proprietary TLR agonists and antagonists to modulate immune responses. A TLR agonist is a compound that stimulates an immune response through the targeted TLR. A TLR antagonist is a compound that blocks activation of an immune response through the targeted TLR.

Our business strategy is to advance applications of our TLR-targeted compounds in multiple disease areas simultaneously. We are advancing some of these applications through internal programs, and we seek to advance other applications through collaborative alliances with pharmaceutical companies. Collaborations provide us with financial resources for our research and development programs and the necessary resources and drug development experience for our partnered programs.

We are focused on developing TLR-targeted compounds for the potential treatment of infectious diseases, autoimmune diseases, and cancer. IMO-2125, a TLR9 agonist, is our lead drug candidate for infectious diseases. At present, we are conducting a Phase 1 clinical trial of IMO-2125 in patients with chronic hepatitis C virus infection who have not responded to current standard of care therapy. The trial is designed to assess the safety of IMO-2125. In addition, the trial is designed to evaluate the effects of IMO-2125 on hepatitis C virus RNA levels and parameters of immune system activation.

As part of our infectious disease program, we are also evaluating RNA-based compounds that act as agonists of TLR7 and TLR8. We refer to our TLR7 and TLR8 agonists as **s**tabilized **i**mmune **m**odulatory **RNA**, or SIMRA, compounds. We have evaluated these compounds in preclinical studies in human cell-based assays and *in vivo* in non-human primates. We intend in 2008 to further evaluate these compounds in preclinical models of infectious disease.

In our autoimmune disease program we have identified DNA-based compounds that act as antagonists of TLR7 and TLR9. We have evaluated these compounds in various preclinical studies, including in mouse models of lupus and rheumatoid arthritis. We are currently conducting further preclinical studies to explore the potential of these compounds in multiple sclerosis and psoriasis.

Our cancer treatment research program is focused on potential applications of our TLR7 and TLR8 agonists. We intend in 2008 to evaluate these compounds in preclinical models of cancer.

We are also collaborating with three pharmaceutical companies to advance our TLR-targeted compounds in multiple disease areas. We are collaborating with Merck KGaA for cancer treatment excluding cancer vaccines, with Merck & Co., Inc., or Merck & Co., for vaccine adjuvants, and with Novartis International Pharmaceutical, Ltd., or Novartis, for treatment of asthma and allergies. Merck KGaA and Merck & Co. are not related.

In December 2007, we entered into a worldwide licensing and collaboration agreement with Merck KGaA for the research, development and commercialization of our TLR9 agonists for the treatment of cancer, excluding cancer vaccines. Under the agreement, we exclusively licensed our clinical stage drug candidates IMO-2055 and IMO-2125, as well as other TLR9 agonists, for the treatment of cancer, excluding cancer vaccines. We and Merck KGaA are evaluating IMO-2055 in clinical trials in cancer patients.

In December 2006, we entered into an exclusive license and research collaboration agreement with Merck & Co. to research, develop and commercialize therapeutic and prophylactic vaccine products containing our TLR7, 8 or 9 agonists in the fields of cancer, infectious diseases and Alzheimer's disease. Under the agreement, we are engaged in a two-year research collaboration to generate novel agonists targeting TLR7 and TLR8, which may

incorporate both Merck & Co. and Idera chemistry, for use in Merck & Co.'s vaccines for cancer, infectious diseases and Alzheimer's disease.

In May 2005, we entered into a research collaboration and option agreement and a license, development, and commercialization agreement with Novartis to discover, develop, and potentially commercialize TLR9 agonists as potential treatments for asthma and allergies. In 2007, Novartis extended the initial two-year research collaboration by an additional year to May 2008. In March 2008, we agreed with Novartis to extend the research collaboration until December 31, 2008. The extension is anticipated to allow for the advancement of QAX935, a novel agonist of TLR9, into human clinical trials prior to the end of the research collaboration term.

Our Business Strategy

We believe that our compounds targeted to TLRs have broad potential applications in the treatment of infectious diseases, autoimmune diseases, cancer, and asthma and allergies, and as vaccine adjuvants. To develop the potential of our discoveries in multiple areas simultaneously, we are advancing some of these applications through internal programs and seeking to advance other applications through collaborations with pharmaceutical companies.

We have entered into collaborative relationships for application of our technology in multiple therapeutic areas. We believe that our collaborations with Merck KGaA for cancer treatment excluding cancer vaccines, Merck & Co. for vaccine adjuvants, and Novartis for treatment of asthma and allergies provide the necessary resources and expertise to advance these programs. These collaborations have also brought us upfront payments that have helped to finance our research and development programs. These collaborations could also result in us receiving additional payments if agreed upon milestones are achieved. We may also receive royalties if any commercial products result from our collaborations.

As our clinical evaluation of IMO-2125 advances in chronic hepatitis C virus infection and our preclinical programs move forward in infectious diseases, autoimmune diseases, and cancer, we may continue to seek additional collaborations. In considering any future collaborations, we will assess the resources and expertise a potential collaborator may bring to the development and commercialization of our drug candidates.

We plan to stay at the forefront of TLR-based research and discovery by applying our chemistry-based approach to create and develop novel and proprietary DNA- and RNA-based compounds targeted to TLRs. We use these compounds, which are synthetic chemical structures, to populate our expanding research and development programs and to support our collaborations.

Overview of the Human Immune System

The immune system protects the body by working through various mechanisms to recognize and eliminate bacteria, viruses and other infectious agents, referred to as pathogens, and abnormal cells, such as cancer cells. These mechanisms initiate a series of signals resulting in stimulation of the immune system in response to the pathogens or abnormal cells. The activities of the immune system are undertaken by its two components: the innate immune system and the adaptive immune system.

The role of the innate immune system is to provide a rapid, non-specific response to a pathogenic invasion or to the presence of abnormal cells in the body and to activate the adaptive immune system. The innate immune system consists of specialized cells such as macrophages, dendritic cells and monocytes. When the body is presented with a pathogen, cells of the innate immune system are activated, resulting in a cascade of signaling events that cause the production of proteins such as cytokines to fight the infection caused by the pathogen. Unlike the antibodies and cellular responses produced by the adaptive immune system as described below, the proteins produced by the innate immune system are not pathogen-specific. Moreover, once the pathogen is eliminated and the infection is resolved, the innate immune system will not remember the pathogen.

In contrast to the innate immune system, the adaptive immune system provides a pathogen-specific response to a pathogenic invasion. The adaptive immune system does this through the recognition by certain immune cells of specific proteins, called antigens, which are part of the pathogen or abnormal cell. This process is initiated through signals produced by the innate immune system. Upon recognition of a foreign antigen, which could come from

pathogens or from cancer cells, the adaptive immune system produces antibodies and antigen-specific immune cells that specifically detect and destroy cells that contain the antigen. This response is referred to as an antigen-specific immune response. An antigen-specific immune response normally takes several weeks to develop the first time. However, once developed, the adaptive immune system "remembers" the antigen. In this manner, if the pathogen again invades the body, the presence of the memory immunity will allow the adaptive immune system to respond again, this time in a matter of days.

TLR-based Drug Discovery Technology

The human immune system is activated by recognition of pathogen-associated molecular patterns, or PAMPs. TLRs comprise a family of receptors that are known to recognize PAMPs. The different members of the TLR family of receptors are expressed in various immune system cells and recognize different PAMPs. Of the TLR receptors, TLR9 is a receptor that specifically recognizes certain DNA patterns that occur in bacteria and other pathogens, and compounds that mimic bacterial DNA. TLR7 and TLR8 are receptors that recognize viral RNA and compounds that mimic viral RNA.

Based on our extensive experience in DNA and RNA chemistry, we are designing and creating novel synthetic DNA- and RNA-based compounds, which as a chemical class are called oligonucleotides. Our compounds are designed to mimic the bacterial DNA and viral RNA that are recognized by TLR7, 8 or 9 with some of our compounds acting as agonists and others acting as antagonists.

TLR9 Agonists

Our most advanced programs are directed at compounds that are agonists of TLR9. These compounds mimic bacterial DNA and induce immune responses through TLR9 that may be applicable to the treatment of infectious diseases, cancer, and asthma and allergies, and for use as vaccine adjuvants. We have created our TLR9 agonist candidates to activate specific cells of the immune system to produce cytokines and other proteins. These activated cells and the cytokines and other proteins they produce lead to stimulation of both the innate and the adaptive components of the immune system. Furthermore, in preclinical cell culture and animal model studies, we have determined that the immunological activity of our compounds can be changed by modifying the structure of our compounds. Our ability to change immunological activity by modifying the chemical structure allows us to create a growing portfolio of compounds potentially useful for treating or preventing different diseases.

TLR7 and TLR8 Agonists

We are designing and creating novel synthetic RNA-based compounds that are agonists of TLR7 and/or TLR8. These RNA-based compounds are designed to mimic viral RNA. In preclinical studies in cell culture and animal models, these compounds induced immune responses that we believe may be applicable to the treatment of cancer and infectious diseases and vaccine adjuvants.

TLR7 and TLR9 Antagonists

We are creating novel classes of compounds that are designed to be antagonists of TLR7 and TLR9. Recent preclinical studies from third-party researchers have suggested TLR7 and TLR9 may play a role in certain autoimmune diseases. In cell-based experiments and animal models, our antagonists have blocked immune stimulation in the presence of specific agonists of TLR9 and specific agonists of TLR7. We have evaluated some of our antagonist compounds in preclinical mouse models of the human autoimmune diseases lupus and rheumatoid arthritis. In both of these models, treatment with our antagonist compounds was associated with improvement in a number of disease parameters.

Research and Development Programs

We and our collaborators are engaged in the evaluation of TLR-targeted compounds in multiple therapeutic areas. The following table summarizes the disease areas and the development status for our programs.

RESEARCH AND DEVELOPMENT PROGRAMS

Disease Area	Drug candidate(s)	Development Status
Infectious Diseases		
Chronic Hepatitis C	IMO-2125 (TLR9 agonist)	Phase 1 Clinical Trial
Viral Diseases	TLR7, 8 and 9 agonists	Research
Autoimmune Diseases		
Lupus, Rheumatoid Arthritis, Multiple Sclerosis, Psoriasis	TLR7, TLR9 antagonists	Research
Oncology		
Solid Tumor Cancers	TLR7, TLR8 agonists	Research

PARTNERED PROGRAMS

Disease Area	Drug candidate(s)	Development Status
Oncology: TLR9 agonists in collaboration with Merck KGaA		
Renal Cell Carcinoma	IMO-2055	Phase 2 Stage A Clinical Trial
Solid Tumors	IMO-2055 + Chemotherapy	Phase 1 Clinical Trial
Non-small Cell Lung Cancer	IMO-2055 in combination with Tarceva® and Avastin®	Phase 1b Clinical Trial
Colorectal Cancer	IMO-2055 in combination with Erbitux® and Camptosar®	Preclinical
Vaccines: TLR7, 8, 9 agonists in collaboration with Merck & Co.		
Cancer, Infectious Diseases, Alzheimer's Disease	TLR7, 8 and 9 agonists as vaccine adjuvants	Research
Respiratory Diseases: TLR9 agonists in collaboration with Novartis		
Asthma, Allergies	QAX935	Preclinical

Infectious Diseases

We and others have conducted preclinical studies in human cell-based assays in which TLR agonists have activated cells of the immune system and induced these cells to secrete cytokines and other proteins that lead to further immune responses. We believe that certain agonists of TLRs 7, 8, and 9 can induce immune system responses that have potential therapeutic applicability in infectious diseases, including those caused by viruses.

Our most advanced application of TLR-targeted drug candidates in infectious diseases involves DNA-based compounds that mimic bacterial DNA and are recognized as agonists of TLR9. Certain TLR9 agonists induce high levels of interferon-alpha in preclinical models. Recombinant interferon products currently are components of the standard of care for viral infectious diseases such as chronic hepatitis C infection.

Hepatitis C — IMO-2125

Currently, the standard of care treatment for chronic hepatitis C virus infection is based on therapies that include a single recombinant interferon protein. We and others have shown in preclinical studies TLR9 agonists induce many proteins, including natural interferon proteins and other proteins with antiviral activity. The induction of natural interferon and other antiviral proteins through TLR9 leads us to believe that TLR9 agonists may provide

advantages over recombinant interferon for the treatment of chronic hepatitis C virus infection because the induced proteins may act in concert to produce a broader or stronger antiviral effect.

We have selected IMO-2125, a synthetic DNA-based TLR9 agonist, as our lead candidate for the treatment of infectious diseases. In preclinical models, including cultures of human immune cells and in nonhuman primates, IMO-2125 was shown to induce high levels of natural interferon and other antiviral proteins. The proteins induced by IMO-2125 in human immune cell cultures and in plasma from nonhuman primates dosed with IMO-2125 showed potent activity for inhibiting hepatitis C virus RNA production in cell-based assays.

In May 2007, we submitted an investigational new drug, or IND, application for IMO-2125 to the FDA, and in September 2007, we initiated a Phase 1 study of IMO-2125 in patients with chronic hepatitis C virus infection who have not responded to the current standard of care treatment. We are currently recruiting patients at five sites and plan to enroll up to 40 patients in four cohorts at escalating IMO-2125 dose levels, with four weeks of treatment. Of the ten patients per cohort, eight will be randomized to receive IMO-2125 treatment and two will be randomized to receive placebo treatment. The trial is designed to assess the safety of IMO-2125 at each dose level. Secondary objectives include assessments of the effects of IMO-2125 on hepatitis C virus RNA levels and parameters of immune system activation. We anticipate interim results from this trial will be available in the first half of 2009.

We have formed a Hepatitis C Clinical Advisory Board to advise us on the clinical development of IMO-2125 for the treatment of chronic hepatitis C virus infection. Members of our Hepatitis C Clinical Advisory Board include leading hepatologists from Europe and the United States.

Viral Diseases

We intend in 2008 to evaluate some of our compounds in preclinical models of viral infectious diseases other than chronic hepatitis C virus infection. In addition to our TLR9 agonists such as IMO-2125, we have identified synthetic RNA-based compounds that mimic viral RNA and are recognized by TLR7 and TLR8. We have discovered structural approaches that stabilize these compounds, which we call SIMRA structures. We have reported data from preclinical studies in human cell-based assays and *in vivo* in non-human primates in which our TLR7 and TLR8 agonist compounds induced immune responses that might be applicable to the treatment of viral infectious diseases.

Autoimmune Diseases

Systemic lupus erythematosus, or lupus, and rheumatoid arthritis are examples of chronic autoimmune diseases in which the immune system attacks the cells and tissues of the body and causes inflammation and tissue damage. Current therapies include corticosteroids and anti-malarial drugs such as chloroquine. In autoimmune diseases such as lupus and rheumatoid arthritis, the immune system forms antibodies to a molecule that is an appropriate part of the body, also known as a self-antigen. An immune complex is then formed between the self-antigen and the antibody to the self-antigen. Recently, third-party researchers have reported that TLR7 and TLR9 may recognize these immune complexes and induce further immune responses to them.

We have identified DNA-based compounds that in preclinical studies have acted as antagonists of TLR7 and TLR9. In studies conducted in mouse models, these antagonists inhibited immune responses mediated through TLR7 and TLR9. We believe that such antagonists may have application in the treatment of autoimmune diseases because they may inhibit TLR7 or TLR9 mediated responses to the immune complex and thereby interfere with the progression of disease symptoms.

We have conducted evaluations of these compounds in various preclinical studies, including in strains of mice that are genetically predisposed to develop autoimmune disease similar to the human autoimmune disease lupus and in a collagen-induced mouse model of rheumatoid arthritis. Data from these evaluations showed improvement in a number of disease parameters. We plan to conduct preclinical studies in additional models, including mouse models of multiple sclerosis and psoriasis, to explore the potential of these novel DNA-based compounds for the treatment of autoimmune diseases. In 2008, we intend to form a scientific advisory board with leading researchers in the field of autoimmune diseases to assist with determining a clinical development strategy for our antagonist candidates. We expect to select a lead antagonist candidate for a defined autoimmune disease and to initiate IND-enabling studies in 2008.

Cancer

The immune system is capable of recognizing cancer cells as abnormal cells, leading to an immune response. However, the body's immune response to cancer cells may be weak or absent. Various mechanisms to increase the immune response to cancer cells have been evaluated by others, including the use of bacterial extracts, *ex vivo* or *in vivo* stimulation of immune cells, and administration of recombinant proteins such as interferons. We believe that agonists of TLRs 7, 8, and 9 can enhance the body's immune response to cancer cells.

We have identified synthetic SIMRA compounds that mimic viral RNA and are recognized by TLR7 and TLR8. We have reported data from preclinical studies in human cell-based assays and *in vivo* in non-human primates in which SIMRA compounds induced immune responses. In the reported data the agonistic activity for TLR7 and TLR8 was dependent on the chemical composition of the SIMRA compounds. We intend to further evaluate these compounds in preclinical cancer models.

We and other researchers have published and presented extensive data on our DNA-based agonists of TLR9 in mouse models of cancer. We have shown in these mouse models that our TLR9 agonists induced an immune response that resulted in antitumor activity. The cascade of immune responses initiated by TLR9 agonists in these studies in mouse models also activated the adaptive immune system functions, and enhanced the recognition of antigens unique to the tumor, which are referred to as tumor-associated antigens.

When our TLR9 agonists were combined in preclinical mouse models with approved anticancer agents, including chemotherapies, antibodies, and newer biologically targeted agents such as inhibitors of proteins involved in cancer cell growth and blood vessel formation, the observed anticancer activity was enhanced beyond that of the anticancer agents alone. We also believe that TLR9 agonists can be combined with tumor-associated antigens to enhance the immune responses to potential cancer vaccine candidates. In preclinical studies conducted by us of some of our TLR9 agonists, enhanced recognition of tumor-associated antigens promoted production of specific antibodies and sensitized immune cells, both of which contribute to an adaptive immune response.

Partnered Programs

We selected IMO-2055, a synthetic DNA-based TLR9 agonist, as a lead candidate for the treatment of cancer. In December 2007, we entered into an exclusive, worldwide license agreement with Merck KGaA to research, develop, and commercialize products containing our TLR9 agonists, including IMO-2055, for the treatment of cancer, excluding cancer vaccines. Prior to entering our collaboration with Merck KGaA, we completed, initiated, or planned the following clinical studies with IMO-2055.

Healthy Volunteer Phase 1 Trial. In March 2004, we completed a Phase 1 clinical trial of IMO-2055 in 28 healthy volunteers over a range of dose levels from 0.005 to 0.16 mg/kg/week for 3 weeks, by subcutaneous injection or intravenous infusion. In this single-center trial, IMO-2055 was well tolerated by the volunteers, who did not experience any significant treatment-related adverse effects. In addition, IMO-2055 demonstrated evidence of immune stimulatory activity in the volunteers.

Refractory Solid Tumor Monotherapy Phase 1 Trial. In February 2006, we completed a Phase 1 clinical trial of IMO-2055 in 23 patients with refractory solid tumor cancers at the Lombardi Comprehensive Cancer Center at Georgetown University Medical Center in Washington, D.C. In this trial, we administered IMO-2055 to the patients by subcutaneous injection in weekly doses that ranged from 0.04 mg/kg/week to 0.64 mg/kg/week for up to 104 weeks. IMO-2055 treatment exhibited evidence of immunological activity as measured by several laboratory tests of immune system function. IMO-2055 was well tolerated at all dosage levels.

Renal Cell Cancer Monotherapy Phase 2 Stage A Trial. In October 2004, we commenced patient recruitment for an open label, multi-center Phase 2 Stage A clinical trial of IMO-2055 as a monotherapy in patients with metastatic or recurrent clear cell renal cancer. Under the protocol for the trial, we sought to enroll a total of up to 92 patients in Stage A of the trial, 46 who had failed one prior therapy and 46 who were treatment-naïve. We closed enrollment in this trial on June 29, 2007. As of that date, we had enrolled 46 treatment-naïve patients and 45 patients who had failed one prior therapy. We will be able to obtain a complete set of data only when all patients have stopped receiving treatment in the trial. As of March 2008, one patient continued to receive treatment in the trial. We expect that initial data from this trial will be available in the second or third quarter of 2008.

Refractory Solid Tumor Chemotherapy Combination Phase 1 Trial. In October 2005, we began patient recruitment in the Phase 1 portion of a clinical trial of IMO-2055 in combination with the chemotherapy agents gemcitabine and carboplatin in patients with refractory solid tumor cancers. The purpose of the Phase 1 portion of the trial, which was a single center, open label study, was to evaluate the safety of the chemotherapy combination. Three dose levels of IMO-2055 and three treatment schedules of IMO-2055 were investigated in this trial. We enrolled twenty-two patients in this trial and closed enrollment in July 2007. We reported interim data from 19 patients from this trial at the 12th World Conference on Lung Cancer in Seoul, Korea, in September 2007. The interim data suggested that it was feasible for the combination of IMO-2055, gemcitabine, and carboplatin to be administered in patients with advanced solid tumors. The only dose-limiting toxicities observed in these patients were common side effects observed with gemcitabine and carboplatin. In these 19 patients, the response rate, progression-free survival, and overall survival were 5%, 4.1 months, and 12.9 months, respectively. In the subset of eight patients with non-small cell lung cancer, the response rate, progression-free survival, and overall survival were 13%, 6.5 months and 12.9 months, respectively.

Non-small Cell Lung Cancer Avastin® and Tarceva® Combination Phase 1b Trial. In December 2007, we initiated a Phase 1b trial of IMO-2055 in combination with Avastin and Tarceva in non-small cell lung cancer patients whose cancer had progressed during a prior course of standard therapy. The trial is designed to assess safety of the IMO-2055, Tarceva and Avastin combination and to determine the recommended dosage of IMO-2055 for potential use in a subsequent Phase 2 trial. Three dose levels of IMO-2055 are being investigated with standard dosages and schedules of Tarceva and Avastin. IMO-2055 is administered subcutaneously once a week, with each patient continuing to receive therapy until disease progression as determined by Response Evaluation Criteria in Solid Tumors, or RECIST, or another protocol-specified stopping criterion is met. We are currently recruiting patients for the trial, which was designed with a target enrollment of up to 40 patients.

Colorectal Cancer Erbitux® and Camptosar® Combination Phase 1b Trial. In 2007, we made plans to initiate a clinical trial in the U.S. to investigate IMO-2055 in combination with Erbitux, a recombinant, humanized antibody to epidermal growth factor receptor, and Camptosar, a cytotoxic, chemotherapeutic agent that inhibits topoisomerase I function, in patients with colorectal cancer. The Phase 1b trial is designed to evaluate multiple dose levels of IMO-2055 with established treatment regimens for Erbitux and Camptosar.

We have agreed with Merck KGaA that we will complete the Phase 2 renal cell cancer trial and the Phase 1 refractory solid tumor chemotherapy combination trial. We also have agreed with Merck KGaA that we will continue to conduct on its behalf the on-going Phase 1b non-small cell lung cancer trial and that we may initiate the proposed Phase 1b colorectal cancer trial. Merck KGaA has agreed to reimburse us for the development costs associated with these two Phase 1b clinical trials incurred after February 4, 2008, which is the date our agreement with Merck KGaA became effective.

Vaccine Adjuvants

Vaccines are composed of one or more antigens and one or more adjuvants in an appropriate formulation. The function of the adjuvants is to enhance immune recognition of the antigens and increase the ability of the immune system to make antigen-specific antibodies.

In preclinical animal models, our TLR agonists have shown adjuvant activity when combined with various types of antigens. Preclinical studies that we have conducted with our TLR9 agonists and various antigens have shown improvements in several measures of antigen recognition, such as achievement of higher antibody titers, higher ratios of specific to nonspecific antibodies, and a reduction in the number of doses required to achieve effective antibody titers. As a result, we believe that TLR agonists have the potential to be used as adjuvants in vaccines.

We have entered into a research collaboration with Merck & Co. and have granted Merck & Co. an exclusive license to develop and commercialize our TLR7, 8, and 9 agonists by incorporating them in therapeutic and prophylactic vaccines being developed by Merck & Co. for cancer, infectious diseases, and Alzheimer's disease.

Asthma and Allergies

Asthma and allergy conditions are characterized by an imbalance of the immune system. Currently approved agents for the treatment of asthma and allergy conditions, including steroids and antibodies, are generally designed to suppress symptoms of asthmatic or allergic response. TLR9 agonists, on the other hand, are designed to induce immune responses that could be useful in restoring immune system balance. In preclinical studies conducted by us and our collaborators, our TLR9 agonists have shown improvements in multiple indices of allergic conditions. For example, we have presented data from mouse models of allergy which show our TLR9 agonists restored the balance of immunological activity, produced a higher ratio of specific versus non-specific antibodies, reduced the number of pulmonary immune cells that produce allergic inflammation, and improved lung function.

We have entered into a research collaboration and option agreement and a separate license, development, and commercialization agreement with Novartis to discover, optimize, develop, and potentially commercialize TLR9 agonists that are identified as potential treatments for asthma and allergies. In March 2008, we agreed with Novartis to extend the research collaboration until December 31, 2008. The extension is anticipated to allow for the advancement of QAX935, a novel agonist of TLR9, into human clinical trials prior to the end of the research collaboration term.

Corporate Alliances

An important part of our business strategy is to enter into research and development collaborations, licensing agreements and other strategic alliances with biotechnology and pharmaceutical corporations that bring expertise and resources to the potential development and commercialization of drugs based on our technology.

Merck KGaA

In December 2007, we entered into an exclusive, worldwide license agreement with Merck KGaA to research, develop and commercialize products containing our TLR9 agonists for the treatment of cancer, excluding cancer vaccines. Under the terms of the agreement, we granted Merck KGaA worldwide exclusive rights to our lead TLR9 agonists, IMO-2055 and IMO-2125, and to a specified number of novel follow-on TLR9 agonists to be identified by Merck KGaA and us under a research collaboration, for use in the treatment, cure and/or delay of the onset or progression of cancer in humans. Under the terms of the agreement:

- In February 2008, Merck KGaA paid us a $40.0 million upfront license fee in Euros of which we received $39.7 million due to foreign currency exchange rates;
- Merck KGaA agreed to reimburse future development costs for certain of our on-going IMO-2055 clinical trials, which will continue to be conducted by us;
- Merck KGaA agreed to pay us up to EUR 264 million in development, regulatory approval, and commercial success milestone payments if products containing our TLR9 agonist compounds are successfully developed and marketed for treatment, cure and/or delay of the onset or progression of cancer in humans; and
- Merck KGaA agreed to pay royalties on net sales of products containing our TLR9 agonists that are marketed.

We have agreed that neither we nor our affiliates will, either directly or through a third party:

- Develop or commercialize any TLR9 agonist for use in treating, curing and/or delaying of the onset or progression of cancer in humans; and
- Develop or commercialize IMO-2055 for use outside treating, curing and/or delaying of the onset or progression of cancer in humans, except as part of vaccine products in the fields of oncology, infectious diseases and Alzheimer's disease, which Idera is pursuing under its collaboration with Merck & Co.

These restrictions will not limit Idera's ability to research, develop and commercialize vaccine products containing IMO-2055 in the fields of oncology, infectious diseases, and Alzheimer's disease, and to research, develop, and commercialize IMO-2125 outside the licensed field as a combination therapy or as a vaccine product.

During the period in which we provide follow-on TLR9 agonists, we agreed to form a joint research committee, consisting of an equal number of members from Idera and Merck KGaA, to facilitate our delivery of such compounds.

Under the agreement, Merck KGaA is obligated to pay us royalties, on a product-by-product and country-by-country basis, until the later of the expiration of the patent rights licensed to Merck KGaA and the 10th anniversary of the product's first commercial sale in such country. If the patent rights expire in a particular country before the 10th anniversary of the product's first commercial sale in such country, Merck KGaA shall continue to pay us royalties at a reduced royalty rate until such anniversary. In addition, the applicable product royalties may be reduced if Merck KGaA is required to pay royalties to third parties for licenses to intellectual property rights. Merck KGaA's royalty and milestone obligations may also be reduced if Merck KGaA terminates the agreement based on specified uncured material breaches by us. The agreement may be terminated by either party based upon material uncured breaches by the other party or by Merck KGaA at any time after providing Idera with advance notice of termination.

Merck & Co., Inc.

In December 2006, we entered into an exclusive license and research collaboration agreement with Merck & Co. to research, develop, and commercialize vaccine products containing our TLR7, 8, and 9 agonists in the fields of cancer, infectious diseases, and Alzheimer's disease. Under the terms of the agreement, we granted Merck & Co. worldwide exclusive rights to a number of our TLR7, 8 and 9 agonists for use in combination with Merck & Co.'s therapeutic and prophylactic vaccines under development in the fields of cancer, infectious diseases, and Alzheimer's disease. There is no limit to the number of vaccines to which Merck & Co. can apply our agonists within these fields. We also agreed with Merck & Co. to engage in a two-year research collaboration to generate novel agonists targeting TLR7 and TLR8 and incorporating both Merck & Co. and Idera chemistry for use in vaccines in the defined fields, which collaboration may be extended by Merck & Co. for two additional one-year periods. Under the terms of the agreement:

- Merck & Co. paid us a $20.0 million upfront license fee;
- Merck & Co. purchased $10.0 million of our common stock at $5.50 per share;
- Merck & Co. agreed to fund the research and development collaboration;
- Merck & Co. agreed to pay us milestone payments as follows:
    - up to $165.0 million if vaccines containing our TLR9 agonist compounds are successfully developed and marketed in each of the oncology, infectious disease and Alzheimer's disease fields;
    - up to $260.0 million if vaccines containing our TLR9 agonist compounds are successfully developed and marketed for follow-on indications in the oncology field and if vaccines containing our TLR7 or TLR8 agonists are successfully developed and marketed in each of the oncology, infectious disease, and Alzheimer's disease fields; and
    - if Merck & Co. develops and commercializes additional vaccines using our agonists, we would be entitled to receive additional milestone payments; and
- Merck & Co. agreed to pay us royalties on net product sales of vaccines using our TLR agonist technology that are developed and marketed.

Merck & Co. agreed, subject to certain exceptions, that prior to December 8, 2007, it would not sell any of the shares of our common stock acquired by it under the agreement and that, for the duration of the research and collaboration term, its ability to sell such shares will be subject to specified volume limitations.

Under the agreement, Merck & Co. is obligated to pay us royalties, on a product-by-product and country-by-country basis, until the later of the expiration of the patent rights licensed to Merck & Co. and the expiration of regulatory-based exclusivity for the vaccine product. If the patent rights and regulatory-based exclusivity expire in a particular country before the 10th anniversary of the product's first commercial sale in such country, Merck & Co. shall continue to pay us royalties at a reduced royalty rate until such anniversary, except that

Merck & Co.'s royalty obligation will terminate upon the achievement of a specified market share in such country by a competing vaccine containing an agonist targeting the same toll-like receptor as that targeted by the agonist in the Merck & Co. vaccine. In addition, the applicable royalties may be reduced if Merck & Co. is required to pay royalties to third parties for licenses to intellectual property rights, which royalties exceed a specified threshold. Merck & Co.'s royalty and milestone obligations may also be reduced if Merck & Co. terminates the agreement based on specified uncured material breaches by us.

Merck & Co. may terminate the collaboration relationship without cause upon 180 days written notice to us during the research term and upon 90 days written notice to us after the research term has ended. Either party may terminate the collaboration relationship upon the other party's filing or institution of bankruptcy, reorganization, liquidation or receivership proceedings, or for a material breach if such breach is not cured within 60 days after delivery of written notice.

Novartis International Pharmaceutical, Ltd.

In May 2005, we entered into a research collaboration and option agreement and a separate license, development and commercialization agreement with Novartis to discover, develop and potentially commercialize TLR9 agonists that are identified as potential treatments for asthma and allergies. In addition, Novartis may expand the collaboration, if specified conditions are satisfied, to include additional disease areas, excluding oncology and infectious diseases.

The agreements with Novartis are structured in two phases. During the research collaboration phase, we and Novartis agreed to work together to evaluate novel TLR9 agonists from which Novartis may select one or more drug candidates for further development through human clinical trials. In March 2008, we agreed with Novartis to extend the research collaboration until December 31, 2008. The extension is anticipated to allow for the advancement of QAX935, a novel agonist of TLR9, into human clinical trials prior to the end of the research collaboration term. Based on the results of the research collaboration, Novartis may elect to implement the commercialization agreement, and, under the license, development and commercialization agreement, complete the development and commercialize one or more of the drug candidates.

Under the terms of the agreements:

- Upon execution of the agreements, Novartis paid us a $4.0 million upfront license fee;
- Novartis agreed to fund substantially all research activities during the research collaboration phase;
- If Novartis elects to exercise its option to develop and commercialize licensed TLR9 agonists in the initial collaboration disease areas, Novartis is potentially obligated to pay us up to $131.0 million based on the achievement of clinical development, regulatory approval, and annual net sales milestones;
- Novartis is potentially obligated to pay us additional milestone payments if Novartis elects to expand the collaboration to include additional disease areas and then develops and commercializes licensed TLR9 agonists in the additional disease areas based on the achievement of clinical development and regulatory approval milestones;
- Novartis is also obligated to pay us royalties on net sales of all products, if any, commercialized by Novartis, its affiliates and sublicensees; and
- Novartis' license rights under the agreements to products that it elects to develop and commercialize are worldwide, exclusive rights.

We and Novartis agreed that the term of the research and collaboration phase would be two years commencing in May 2005. In 2007, Novartis extended our research collaboration by an additional year to May 2008. In connection with this extension, Novartis paid us an additional license fee of $1.0 million. In 2008, we agreed to extend the research collaboration until December 31, 2008.

Under the agreements, Novartis' obligations to pay us royalties extend, on a product-by-product and country-by-country basis, until the expiration of the patent rights covering the product licensed to Novartis in countries in which there is coverage by licensed patent rights, and, in countries in which there is no coverage by

licensed patent rights, until the earlier of the last day of the calendar year in which Novartis loses market exclusivity with respect to a product and the date 10 years after the product's commercial launch.

Novartis may terminate the research collaboration and option agreement without cause upon 90 days written notice to us and the license, development, and commercialization agreement upon 60 days written notice to us. Upon 30 days written notice, either party may terminate the research collaboration and option agreement for a material breach if such breach is not cured within the 30-day notice period, and upon 90 days written notice, either party may terminate the license, development, and commercialization agreement if such breach is not cured within the 90-day notice period. Upon 30 days written notice, either party may terminate the research collaboration and option agreement and/or the license, development, and commercialization agreement upon the other party's filing of bankruptcy.

Antisense Technology

We have been a pioneer in the development of antisense technology. Although we are not actively developing this technology at present, we believe that our antisense technology may be useful to pharmaceutical and biotechnology companies that are seeking to develop drug candidates that down-regulate gene targets discovered by, or proprietary to, such companies. Antisense drug candidates are designed to bind to RNA targets through hybridization, and decrease production of the specific protein encoded by the target RNA. We believe that drugs based on antisense technology may be more effective and cause fewer side effects than conventional drugs in applications with well-defined RNA targets because antisense drugs are designed to intervene in a highly specific fashion in the production of proteins, rather than after the proteins are made.

Currently, we are a party to five collaboration and license agreements involving the use of our antisense technology and specified indications. These agreements include a license agreement with Isis Pharmaceuticals, Inc., or Isis, involving intellectual property for antisense chemistry and delivery.

Under the agreement with Isis, we granted Isis a license, with the right to sublicense, to our antisense chemistry and delivery patents and patent applications; and we retained the right to use these patents and applications in our own drug discovery and development efforts and in collaborations with third parties. Isis paid us an initial licensing fee and is required to pay us a portion of specified sublicense income it receives from some types of sublicenses of our patents and patent applications. Also under the agreement, we licensed from Isis specified antisense patents and patent applications, principally Isis' suite of RNase H patents and patent applications. We also paid an initial licensing fee for this license and are obligated to pay Isis a maintenance fee and royalties. We have the right to use these patents and patent applications in our drug discovery and development efforts and in some types of third party collaborations. The licenses granted under the Isis agreement terminate upon the last to expire of the patents and patent applications licensed under the agreement. We may terminate at any time the sublicense by Isis to us of the patents and patent applications.

In 2007, we gave formal notice to Isis that we believed that Isis had materially breached certain provisions of the Collaboration and License Agreement, or the Collaboration Agreement, between us and Isis dated May 24, 2001. We and Isis submitted the dispute to arbitration and in January 2008, the arbitrator decided that Isis had not breached the Collaboration Agreement. The results of this arbitration are not material to us and have not changed the rights we reserved in the Collaboration Agreement to practice our intellectual property.

We are also a party to four other license agreements involving the license of our antisense patents and patent applications for specific gene targets under which we typically are entitled to receive license fees, sublicensing income, research payments, payments upon achievement of developmental milestones, and royalties on product sales. These agreements typically expire upon the later of the last to expire of the licensed patents or a specified number of years after the first commercial sale of a licensed product. These agreements may be terminated by either party for a material breach, and our collaborators may terminate these agreements at any time for convenience, with written notice.

We are also a party to six royalty-bearing license agreements under which we have acquired rights to antisense related patents, patent applications, and technology. Each of these in-licenses automatically terminates upon the expiration of the last to expire patent included in the license. Our principal in-license is with University of

Massachusetts Medical Center for chemistry and for certain gene targets. Under all of these in-licenses, we are obligated to pay royalties on our net sales of products or processes covered by a valid claim of a licensed patent or patent application. In certain cases, we are required to pay a specified percentage of any sublicense income, and all of these licenses impose various commercialization, sublicensing, insurance, and other obligations on us, and our failure to comply with these requirements could result in termination of the licenses. Additionally, as part of a 2003 interference resolution for one of the licensed patents, a settlement was made enabling us to receive a percentage of the royalty amounts the National Institutes of Health receives for the sale of a product that is covered by such patent.

Research and Development Expenses

For the years ended December 31, 2007, 2006 and 2005, we spent approximately $13.2 million, $12.7 million and $11.2 million, respectively, on research and development activities. In 2007, Merck & Co. sponsored approximately $1.1 million of our research and development activities. Our collaborators sponsored only a nominal portion of our research and development activities in 2006. In 2005, Novartis sponsored approximately $1.0 million of our research and development activities.

Patents, Proprietary Rights and Trade Secrets

Our success depends in part on our ability to obtain and maintain proprietary protection for our drug candidates, technology and know-how, to operate without infringing the proprietary rights of others and to prevent others from infringing our proprietary rights. We use a variety of methods to seek to protect our proprietary position, including filing U.S. and foreign patent applications related to our proprietary technology, inventions and improvements that are important to the development of our business. We also rely on trade secrets, know-how, continuing technological innovation and in-licensing opportunities to develop and maintain our proprietary position.

We have devoted and continue to devote a substantial amount of our resources into establishing intellectual property protection for:

- Novel chemical entities that function as agonists of TLR7, 8 or 9;
- Novel chemical entities that function as antagonists of TLR7, 8 or 9; and
- Use of our novel chemical entities and chemical modifications to treat and/or prevent a variety of diseases.

As of February 29, 2008, we owned 61 U.S. patents and U.S. patent applications and 161 corresponding worldwide patents and patent applications for our TLR-targeted immune modulation technologies. These patents and patent applications include novel chemical compositions of matter and methods of use for our immune modulatory compounds, including IMO-2055 and IMO-2125.

To date, all of our intellectual property covering immune modulatory compositions and methods of their use is based on discoveries made solely by us. The earliest of the issued patents for these discoveries expires in 2017. The U.S. patent specifically covering the composition of IMO-2055 expires in 2023.

In addition to our TLR-targeted patent portfolio, we are the owner or hold licenses of patents and patent applications related to antisense technology. As of February 29, 2008, our antisense patent portfolio included 103 U.S. patents and patent applications and 159 patents and patent applications throughout the rest of the world. These antisense patents and patent applications include novel compositions of matter, the use of these compositions for various genes, sequences and therapeutic targets, and oral and other routes of administration. Some of the patents and patent applications in our antisense portfolio were in-licensed. These patents expire at various dates ranging from 2014 to 2022.

Because patent applications in the United States and many foreign jurisdictions are typically not published until 18 months after filing, or in some cases not at all, and because publications of discoveries in the scientific literature often lag behind actual discoveries, we cannot be certain that we were the first to make the inventions claimed in each of our issued patents or pending patent applications, or that we were the first to file for protection of the inventions set forth in these patent applications.

Litigation may be necessary to defend against or assert claims of infringement, to enforce patents issued to us, to protect trade secrets or know-how owned by us, or to determine the scope and validity of the proprietary rights of others. In addition, the U.S. Patent and Trademark Office may declare interference proceedings to determine the priority of inventions with respect to our patent applications or reexamination or reissue proceedings to determine if the scope of a patent should be narrowed. Litigation or any of these other proceedings could result in substantial costs to and diversion of effort by us, and could have a material adverse effect on our business, financial condition and results of operations. These efforts by us may not be successful.

We may rely, in some circumstances, on trade secrets and confidentiality agreements to protect our technology. Although trade secrets are difficult to protect, wherever possible, we use confidential disclosure agreements to protect the proprietary nature of our technology. We regularly implement confidentiality agreements with our employees, consultants, scientific advisors, and other contractors and collaborators. However, there can be no assurance that these agreements will not be breached, that we will have adequate remedies for any breach, or that our trade secrets and/or proprietary information will not otherwise become known or be independently discovered by competitors. To the extent that our employees, consultants or contractors use intellectual property owned by others in their work for us, disputes may also arise as to the rights in related or resulting know-how and inventions.

Government Regulation

The testing, manufacturing, labeling, advertising, promotion, distribution, import, export, and marketing, among other things, of drugs are extensively regulated by governmental authorities in the United States and other countries. In the U.S., the FDA regulates pharmaceutical products under the Federal Food, Drug, and Cosmetic Act, or FDCA, and other laws and regulations. Both before and after approval for marketing is obtained, violations of regulatory requirements may result in various adverse consequences, including the FDA's delay in approving or refusal to approve a drug, withdrawal of approval, suspension or withdrawal of an approved product from the market, operating restrictions, warning letters, product recalls, product seizures, injunctions, fines, and the imposition of civil or criminal penalties.

The steps required before a product may be approved for marketing in the U.S. generally include:

- nonclinical laboratory tests and animal tests under the FDA's good laboratory practices regulations;
- the submission to the FDA of an IND application 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;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the product is made to assess compliance with the FDA's regulations on current good manufacturing practices, or cGMPs; and
- the submission to the FDA of an new drug application, or NDA, or a biologic license application, or BLA.

Nonclinical tests include laboratory evaluation of the product, as well as animal studies to assess the potential safety and pharmacological activity of a drug. The results of the nonclinical tests, together with manufacturing information and analytical data, are submitted to the FDA as part of an IND, which must become effective before human clinical trials may be commenced. The IND will automatically become effective 30 days after its receipt by the FDA, unless the FDA before that time raises concerns or questions about the conduct of the trials as outlined in the IND. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before clinical trials can proceed. If these issues are unresolved, the FDA may choose to not allow the clinical trials to commence. There is no guarantee that submission of an IND will result in the FDA allowing clinical trials to begin.

Clinical trials typically are conducted in three sequential phases, but the phases may overlap or be combined. Clinical trials are conducted under protocols detailing the objectives of the trials, the parameters to be used in monitoring safety, and the effectiveness criteria to be evaluated. Each protocol must be submitted to the FDA as part of the IND prior to beginning the trial. Each trial must be reviewed and approved by an independent Institutional

Research Board for each investigative site before it can begin at that site. Subjects must provide informed consent for all trials.

- In Phase 1, the initial introduction of the drug into human subjects, the drug is usually tested for safety or adverse effects, dosage tolerance, pharmacokinetics, and pharmacologic action;
- Phase 2 usually involves controlled trials in a limited patient population to:
  - evaluate preliminarily the efficacy of the drug for a specific, targeted condition,
  - determine dosage tolerance and appropriate dosage for further trials, and
  - identify possible adverse effects and safety risks.
- Phase 3 trials generally further evaluate clinical efficacy and test further for safety within an expanded patient population with considerations of statistical design and power.

Phase 1, 2, and 3 testing may not be completed successfully within any specified period, or at all. We, an Institutional Review Board, or the FDA, may suspend or terminate clinical trials at any time on various grounds, including a finding that the patients are being exposed to an unacceptable health risk. Additional nonclinical toxicology studies are required after clinical trials have begun. Our clinical testing program may be delayed or terminated due to factors such as:

- unforeseen safety issues in the clinical trials and/or the continuing nonclinical toxicology studies;
- inability to recruit patients at the rate we expect;
- failure by the subjects and/or the investigators to adhere to protocol requirements;
- inability to collect the information required to assess patients adequately for safety and efficacy; and
- insufficient evidence of efficacy.

The results of the nonclinical and clinical studies, together with other detailed information, including information on the manufacture and composition of the product, are submitted to the FDA as part of an NDA or BLA for review and potential approval prior to the marketing and commercial shipment of the product. The FDA reviews an NDA to determine, among other things, whether a product is safe and effective for its intended use. The FDA reviews a BLA to determine, among other things, whether the product is safe, pure, and potent and the facility in which it is manufactured, processed, packed or held meets standards designed to assure the product's continued safety, purity, and potency. In most cases, the NDA or BLA must be accompanied by a substantial user fee. The FDA also will inspect the manufacturing facility used to produce the product for compliance with cGMP regulations. The FDA may deny an NDA or BLA if all applicable regulatory criteria are not satisfied or may require additional clinical, toxicology or manufacturing data. Even after an NDA or BLA results in approval to market a product, the FDA may limit the indications or place other limitations that restrict the commercial application of the product. The FDA may issue a not approvable response to any NDA or BLA we or our collaborators may submit for a variety of reasons, including insufficient evidence of safety and/or efficacy or inadequate manufacturing procedures.

After approval, some types of changes to the approved product, such as adding new indications, manufacturing changes and additional labeling claims, are subject to further FDA review and approval. The FDA may require additional clinical testing, or Phase 4 clinical trials, to be conducted after initial marketing approval. The FDA may withdraw product approval if compliance with regulatory standards and/or conditions of the marketing approval is not maintained or if safety problems occur after the product reaches the market. In addition, the FDA requires surveillance programs to monitor the consistency of manufacturing and the safety of approved products that have been commercialized. Holders of an approved NDA are required to report certain adverse reactions and production problems to the FDA, to provide updated safety and efficacy information, and to comply with requirements concerning advertising and promotional labeling. The agency has the power to require changes in labeling or to prevent further marketing of a product based on new data that may arise after commercialization. Also, new federal, state, or local government requirements may be established that could delay or prevent regulatory approval of our products under development.

It may take many years and the expenditure of substantial resources to evaluate fully the safety and efficacy of a drug candidate in nonclinical and clinical studies, to qualify appropriate drug product formulations, and to ensure manufacturing processes are compliant with regulations. Data obtained in nonclinical studies or early clinical studies may not be indicative of results that might be obtained in later clinical trials that are often critical to the regulatory approval process. Formulation and/or manufacturing changes may cause delays in the development plan or require re-testing. Many of the activities may be subject to varying interpretations that could limit, delay, or prevent regulatory approval.

We will also be subject to a variety of foreign regulations governing clinical trials and the marketing and sale of our products. Whether or not FDA approval has been obtained, approval of a product by the comparable regulatory authorities of foreign countries must be obtained prior to the commencement of marketing of the product in those countries. The approval process varies from country to country and the time may be longer or shorter than that required for FDA approval. For marketing outside the U.S., we are also subject to foreign regulatory requirements governing human clinical trials. The requirements governing the conduct of clinical trials, product licensing, approval, pricing, and reimbursement vary greatly from country to country.

In addition to regulations enforced by the FDA, we are also subject to regulation under the Occupational Safety and Health Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, and other present and potential future federal, state, or local regulations. Our research and development activities involve the controlled use of hazardous materials, chemicals and various radioactive compounds. Although we believe that our safety procedures for handling and disposing of such materials comply with the standards prescribed by state, federal, and local regulations, the risk of accidental contamination or injury from these materials cannot be completely eliminated. In the event of such an accident, we could be held liable for any damages that result and any such liability could exceed our resources.

Our collaborators under the various license agreements we have completed have assumed responsibility for regulatory issues pertinent to any drug candidates or marketed products that may arise from our collaborations.

Manufacturing

We do not currently own or operate manufacturing facilities for the production of clinical or commercial quantities of any of our drug candidates. We currently rely and expect to continue to rely on third parties for the manufacture of our drug candidates for preclinical and clinical development. We currently source our bulk drug manufacturing requirements from one contract manufacturer through the issuance of purchase orders on an as-needed basis. We depend and will continue to depend on our contract manufacturers to manufacture our drug candidates in accordance with cGMP regulations for use in clinical trials. We will ultimately depend on contract manufacturers for the manufacture of our products for commercial sale. Contract manufacturers are subject to extensive governmental regulation.

Under our collaborative agreements with Merck KGaA, Merck & Co., and Novartis, our collaborators are responsible for manufacturing the drug candidates. We believe each collaborator purchases bulk drugs from a contract manufacturer.

Competition

We are developing our TLR-targeted drug candidates for use in the treatment of infectious diseases, autoimmune diseases, cancer and asthma and allergies, and as vaccine adjuvants. For all of the disease areas in which we are developing potential therapies, we face competition from other companies developing products involving TLR targeted compounds as well as non-TLR targeted therapies. Some of these non-TLR targeted therapies have been in development or commercialized for years, in some cases by large, well established pharmaceutical companies. Many of the marketed therapies have been accepted by the medical community, patients, and third-party payors. Our ability to compete may be affected by the previous adoption of such therapies by the medical community, patients, and third party payors. Additionally, in some instances, insurers and other third-party payors seek to encourage the use of generic products, which makes branded products, such as our drug candidates, potentially less attractive, from a cost perspective, to buyers.

With respect to the development of products involving stimulation of the immune system, there are a number of companies, both privately and publicly held, that are actively engaged in the discovery, development, and commercialization of products and technologies involving TLR-targeted compounds that compete with our technologies and drug candidates, including compounds targeting TLRs 7, 8 or 9. Our principal competitors developing TLR-targeted compounds include: Pfizer, Inc., which acquired Coley Pharmaceutical Group in November 2007; Dynavax Technologies Corporation; and Anadys Pharmaceutical, Inc. We are also aware that the following companies are developing TLR-targeted compounds: Cytos Biotechnology AG; Eisai, Inc.; GlaxoSmithKline plc; Hemispherx Biopharma, Inc.; Innate Pharma SA; Intercell AG; Opsona Therapeutics Ltd.; and VaxInnate, Inc.

- In infectious diseases, Dynavax Technologies Corporation has a preclinical TLR9 agonist lead molecule for hepatitis C treatment.
- In autoimmune diseases, Pfizer, Inc., has an on-going Phase 1 clinical trial in healthy volunteers with a TLR antagonist, CPG 52364, for the treatment of lupus, and Dynavax Technologies Corporation has a discovery-stage autoimmune program.
- In cancer, Pfizer, Inc., has multiple clinical trials on-going with its TLR9 agonist PF-3512676. In June 2007, Coley Pharmaceutical Group, which has since been acquired by Pfizer, Inc., discontinued certain clinical trials for PF-3512676 in combination with selected cytotoxic agents in lung cancer. Dynavax Technologies Corporation has an ongoing Phase 2 clinical trial in Non-Hodgkin's lymphoma for its TLR9 agonist 1018 ISS as well as a Phase 1 clinical trial in colorectal cancer. In addition, Anadys Pharmaceutical, Inc., has announced that is has initiated a Phase 1 clinical trial in solid tumors for its TLR7 agonist ANA773.
- In asthma and allergies, Dynavax Technologies Corporation by itself and in collaboration with AstraZeneca Pharmaceuticals plc, and Pfizer, Inc., in collaboration with sanofi-aventis Groupe have ongoing clinical trials with TLR9 agonists.
- Merck & Co.'s vaccines using our TLR7, 8 or 9 agonists as adjuvants may compete with vaccines being developed or marketed by GlaxoSmithKline plc, Novartis, Dynavax Technologies Corporation, VaxInnate, Inc., Intercell AG, and Cytos Biotechnology AG.

We recognize that other companies, including large pharmaceutical companies, may be developing or have plans to develop competitive products and technology. Many of our competitors have substantially greater financial, technical, and human resources than we have. In addition, many of our competitors have significantly greater experience than we have in undertaking preclinical studies and human clinical trials of new pharmaceutical products, obtaining FDA and other regulatory approvals of products for use in health care and manufacturing, marketing and selling approved products.

Competition among these products and therapies will be based, among other things, on product efficacy, safety, reliability, availability, price, and patent position.

The timing of market introduction of our products and competitive products will also affect competition among products. We also expect the relative speed with which we can develop products, complete the clinical trials and approval processes and supply commercial quantities of the products to the market to be an important competitive factor. Our competitive position will also depend upon our ability to attract and retain qualified personnel, to obtain patent protection or otherwise develop proprietary products or processes and to secure sufficient capital resources for the often substantial period between technological conception and commercial sales.

Employees

As of February 29, 2008, we employed 38 individuals full-time. Of our 38 employees, 25 are engaged in research and development and 21 hold a Ph.D., M.D., or equivalent degree. None of our employees are covered by a collective bargaining agreement, and we consider relations with our employees to be good.

Information Available on the Internet

Our internet address is www.iderapharma.com. The contents of our website are not part of this Annual Report on Form 10-K and our internet address is included in this document as an inactive textual reference. We make available free of charge through our web site our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to these reports filed or furnished pursuant to Section 12(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after we electronically file or furnish such materials to the Securities and Exchange Commission.

Item 1A. ***Risk Factors***

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks and uncertainties described below in addition to the other information included or incorporated by reference in this annual report on Form 10-K before purchasing our common stock. If any of the following risks actually occurs, our business, financial condition or results of operations would likely suffer, possibly materially. In that case, the trading price of our common stock could fall, and you may lose all or part of the money you paid to buy our common stock.

Risks Relating to Our Financial Results and Need for Financing

We have incurred substantial losses and expect to continue to incur losses. We will not be successful unless we reverse this trend.

We have incurred losses in every year since our inception, except for 2002 when our recognition of revenues under a license and collaboration agreement resulted in our reporting net income for that year. As of December 31, 2007, we had an accumulated deficit of $342.7 million. We have incurred losses of $82.5 million since January 1, 2001. We also incurred losses of $260.2 million prior to December 31, 2000 during which time we were primarily involved in the development of antisense technology. These losses, among other things, have had and will continue to have an adverse effect on our stockholders' equity, total assets and working capital.

We have never had any products of our own available for commercial sale and have received no revenues from the sale of drugs. To date, almost all of our revenues have been from collaborative and license agreements. We have devoted substantially all of our efforts to research and development, including clinical trials, and we have not completed development of any drugs. Because of the numerous risks and uncertainties associated with developing drugs, we are unable to predict the extent of any future losses, whether or when any of our products will become commercially available, or when we will become profitable, if at all. We may incur substantial operating losses in future periods.

We will need additional financing, which may be difficult to obtain. Our failure to obtain necessary financing or doing so on unattractive terms could adversely affect our research and development programs and other operations.

We will require substantial funds to conduct research and development, including preclinical testing and clinical trials of our drug candidates. We will also require substantial funds to conduct regulatory activities and to establish commercial manufacturing, marketing and sales capabilities. We believe that, based on our current operating plan, our existing cash, cash equivalents and short-term investments, including the $39.7 million upfront payment that we received in February 2008 under our agreement with Merck KGaA, will be sufficient to fund our operations at least through December 31, 2009.

We will need to raise additional funds to operate our business beyond such time, including completing any on-going clinical trials involving IMO-2125 or other drug candidates we may develop. We believe that the key factors that will affect our ability to obtain additional funding are:

- the success of our clinical and preclinical development programs;
- the success of our existing strategic collaborations with Merck KGaA, Merck & Co. and Novartis;
- the cost, timing and outcome of regulatory reviews;
- the receptivity of the capital markets to financings by biotechnology companies; and
- our ability to enter into additional strategic collaborations with biotechnology and pharmaceutical companies and the success of such collaborations.

If we cannot obtain adequate funds, we may terminate, modify or delay preclinical or clinical trials of one or more of our drug candidates, fail to establish or delay the establishment of manufacturing, sale or marketing capabilities, or curtail research and development programs for new drug candidates.

Additional financing may not be available to us when we need it or may not be available to us on favorable terms. We could be required to seek funds through arrangements with collaborators or others that may require us to relinquish rights to some of our technologies, drug candidates or drugs that we would otherwise pursue on our own. In addition, if we raise additional funds by issuing equity securities, our then existing stockholders will experience dilution. The terms of any financing may adversely affect the holdings or the rights of existing stockholders. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends, and are likely to include rights that are senior to the holders of our common stock. Any additional debt financing or equity that we raise may contain terms, such as liquidation and other preferences, or liens or other restrictions on our assets, which are not favorable to us or our stockholders. If we are unable to obtain adequate funding on a timely basis or at all, we may be required to significantly curtail one or more of our discovery or development programs. For example, we significantly curtailed expenditures on our research and development programs during 1999 and 2000 because we did not have sufficient funds available to advance these programs at planned levels.

Risks Relating to Our Business, Strategy and Industry

We are depending heavily on the success of our our lead drug candidate for infectious diseases, IMO-2125, and our collaborative programs. If we or our collaborators are unable to successfully develop and commercialize our drug candidates, or experience significant delays in doing so, our business will be materially harmed.

We are investing a significant portion of our time and financial resources in the development of our clinical stage lead drug candidate for infectious diseases, IMO-2125. We anticipate that our ability to generate product revenues will depend heavily on the successful development and commercialization of IMO-2125 and other drug candidates including drug candidates being developed by our collaborators. The commercial success of these drug candidates will depend on several factors, including the following:

- acceptable safety profile during clinical trials;
- demonstration of statistically recognized efficacy in clinical trials;
- ability to combine IMO-2125 safely and successfully with other antiviral agents;
- receipt of marketing approvals from the FDA and equivalent foreign regulatory authorities;
- establishment of commercial manufacturing arrangements with third-party manufacturers;
- the successful commercial launch of the drug candidates, whether alone or in collaboration with other products;
- acceptance of the products by the medical community and third-party payors;

- competition from other companies and their therapies;
- successful protection of our intellectual property rights from competing products in the United States and abroad; and
- a continued acceptable safety and efficacy profile of our drug candidates following approval.

Our efforts to commercialize IMO-2125 are at an early stage, as we are currently conducting the initial Phase 1 safety clinical trial of this drug candidate in a defined patient population. If we are not successful in commercializing this or our other drug candidates, or are significantly delayed in doing so, our business will be materially harmed.

If our clinical trials are unsuccessful, or if they are delayed or terminated, we may not be able to develop and commercialize our products.

In order to obtain regulatory approvals for the commercial sale of our products, we are required to complete extensive clinical trials in humans to demonstrate the safety and efficacy of our drug candidates. Clinical trials are lengthy, complex and expensive processes with uncertain results. We may not be able to complete any clinical trial of a potential product within any specified time period. Moreover, clinical trials may not show our potential products to be both safe and efficacious. The FDA and other regulatory authorities may not approve any of our potential products for any indication. We may not be able to obtain authority from the FDA or other equivalent foreign regulatory agencies to complete these trials or commence and complete any other clinical trials.

The results from preclinical testing of a drug candidate that is under development may not be predictive of results that will be obtained in human clinical trials. In addition, the results of early human clinical trials may not be predictive of results that will be obtained in larger scale, advanced stage clinical trials. Furthermore, interim results of a clinical trial do not necessarily predict final results and failure of any of our clinical trials can occur at any stage of testing. Companies in the biotechnology and pharmaceutical industries, including companies with greater experience in preclinical testing and clinical trials than we have, have suffered significant setbacks in clinical trials, even after demonstrating promising results in earlier trials. For example in June 2007, Coley Pharmaceutical Group, which since has been acquired by Pfizer, Inc., discontinued four clinical trials in lung cancer for PF-3512676, its investigational TLR9 agonist compound, in combination with cytotoxic chemotherapy. In addition, in January 2007, Coley Pharmaceutical Group announced that it had suspended its development of a TLR9 agonist, Actilon®, for hepatitis C virus infection. In July 2007, Anadys Pharmaceuticals, Inc. and its partner Novartis announced that they had decided to discontinue the development of ANA975, the investigational TLR7 agonist compound for hepatitis C virus infection.

There are to date few data on the long-term clinical safety of our lead compounds under conditions of prolonged use in humans, or on any long-term consequences subsequent to human use. Effects seen in preclinical studies, even if not observed in clinical trials, may result in limitations or restrictions on our clinical trials. We may experience numerous unforeseen events during, or as a result of, preclinical testing, nonclinical testing, or the clinical trial process that could delay or inhibit our ability to receive regulatory approval or to commercialize our products, including:

- regulators or Institutional Review Boards may not authorize us to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- nonclinical or clinical data may not be readily interpreted, which may lead to delays and/or misinterpretation;
- our nonclinical tests, including toxicology studies, or clinical trials may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional nonclinical testing or clinical trials or we may abandon projects that we expect may not be promising;
- the rate of enrollment or retention of patients in our clinical trials may be less than expected;
- we might have to suspend or terminate our clinical trials if the participating patients experience serious adverse events or undesirable side effects or are exposed to unacceptable health risks;

- regulators or Institutional Review Boards may require that we hold, suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements, including any issues identified through inspections of manufacturing or clinical trial operations or clinical trial sites;
- regulators may hold or suspend our clinical trials while collecting supplemental information on, or clarification of, our clinical trials or other clinical trials, including trials conducted in other countries or trials conducted by other companies;
- we, along with our collaborators and subcontractors, may not employ, in any capacity, persons who have been debarred under the FDA's Application Integrity Policy. Employment of such debarred persons, even if inadvertently, may result in delays in the FDA's review or approval of our products, or the rejection of data developed with the involvement of such person(s);
- the cost of our clinical trials may be greater than we currently anticipate; and
- our products may not cause the desired effects or may cause undesirable side effects or our products may have other unexpected characteristics.

As an example, in 1997, after reviewing the results from the clinical trial of GEM91, a first generation antisense compound and our lead drug candidate at the time, we determined not to continue the development of GEM91 and suspended clinical trials of this drug candidate.

The rate of completion of clinical trials is dependent in part upon the rate of enrollment of patients. For example, in Stage A of our Phase 2 trial of IMO-2055 in renal cell cancer, enrollment was slower than projected due to the recent approval of two new therapies, Sutent® and Nexavar®, developed by other companies for treatment of the same patient populations. Patient accrual is a function of many factors, including:

- the size of the patient population;
- the proximity of patients to clinical sites;
- the eligibility criteria for the study;
- the nature of the study;
- the existence of competitive clinical trials; and
- the availability of alternative treatments.

We do not know whether clinical trials will begin as planned, will need to be restructured or will be completed on schedule, if at all. Significant clinical trial delays also could allow our competitors to bring products to market before we do and impair our ability to commercialize our products.

Delays in commencing clinical trials of potential products could increase our costs, delay any potential revenues and reduce the probability that a potential product will receive regulatory approval.

Our drug candidates and our collaborators' drug candidates will require preclinical and other nonclinical testing and extensive clinical trials prior to submission of any regulatory application for commercial sales. In 2007, we commenced a new Phase 1b clinical trial of IMO-2055 in oncology, and we commenced a Phase 1 clinical trial of IMO-2125 for chronic hepatitis C virus infection. In conducting clinical trials, we cannot be certain that any planned clinical trial will begin on time, if at all. Delays in commencing clinical trials of potential products could increase our product development costs, delay any potential revenues and reduce the probability that a potential product will receive regulatory approval.

Commencing clinical trials may be delayed for a number of reasons, including delays in:

- manufacturing sufficient quantities of drug candidate that satisfy the required quality standards for use in clinical trials;
- demonstrating sufficient safety to obtain regulatory approval for conducting a clinical trial;
- reaching an agreement with any collaborators on all aspects of the clinical trial;

- reaching agreement with contract research organizations, if any, and clinical trial sites on all aspects of the clinical trial;
- resolving any objections from the FDA or any regulatory authority on an IND application or proposed clinical trial design;
- obtaining Institutional Review Board approval for conducting a clinical trial at a prospective site; and
- enrolling patients in order to commence the clinical trial.

The technologies on which we rely are unproven and may not result in any approved and marketable products.

Our technologies or therapeutic approaches are relatively new and unproven. We have focused our efforts on the research and development of RNA- and DNA-based compounds targeted to TLRs. Neither we nor any other company have obtained regulatory approval to market such compounds as therapeutic drugs, and no such products currently are being marketed. It is unknown whether the results of preclinical studies with TLR-targeted compounds will be indicative of results that may be obtained in clinical trials, and results we have obtained in the initial small-scale clinical trials we have conducted to date may not be predictive of results in subsequent large-scale trials. Further, the chemical and pharmacological properties of RNA- and DNA-based compounds targeted to TLRs may not be fully recognized in preclinical and small-scale clinical trials, and such compounds may interact with human biological systems in unforeseen, ineffective, or harmful ways that we have not yet identified. As a result of these factors, we may never succeed in obtaining a regulatory approval to market any product. Furthermore, the commercial success of any of our products for which we may obtain marketing approval from the FDA or other regulatory authorities will depend upon their acceptance by the medical community and third party payors as clinically useful, safe, and cost-effective. In addition, if products based upon TLR technology being developed by our competitors have negative clinical trial results or otherwise are viewed negatively, the perception of our TLR technology and market acceptance of our products could be impacted negatively. For example, we are pursuing an indication for treatment of chronic hepatitis C virus infection for IMO-2125 and commenced a Phase 1 clinical trial of IMO-2125 in patients with chronic hepatitis C virus infection in the third quarter of 2007. Pfizer, Inc. and Anadys Pharmaceuticals, Inc. each have performed early clinical trials of TLR-targeted compounds for the treatment of chronic hepatitis C virus infection, and both programs have been discontinued. We cannot be certain whether such discontinuations will negatively impact the perception of our TLR technology.

Our efforts to educate the medical community on our potentially unique approaches may require greater resources than would be typically required for products based on conventional technologies or therapeutic approaches. The safety, efficacy, convenience and cost-effectiveness of our products as compared to competitive products will also affect market acceptance.

We face substantial competition, which may result in others discovering, developing or commercializing drugs before or more successfully than us.

The biotechnology industry is highly competitive and characterized by rapid and significant technological change. We face, and will continue to face, intense competition from pharmaceutical and biotechnology companies, as well as academic and research institutions and government agencies. Some of these organizations are pursuing products based on technologies similar to our technologies. Other of these organizations have developed and are marketing products, or are pursuing other technological approaches designed to produce products, that are competitive with our drug candidates in the therapeutic effect these competitive products have on diseases targeted by our drug candidates. Our competitors may discover, develop or commercialize products or other novel technologies that are more effective, safer or less costly than any that we are developing. Our competitors may also obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours. As examples, the FDA recently approved drugs developed by other companies, Sutent® and Nexavar®, for use in renal cell cancer, which is the indication for which we are evaluating IMO-2055 monotherapy in our Phase 2 trial. Pfizer, Inc., is conducting clinical trials of PF-3512676, a TLR9 agonist for treating cancer. In addition, Dynavax Technologies Corporation has announced initiation of a clinical trial for its TLR9 agonist 1018 ISS for cancer. Both Pfizer, Inc., and Dynavax Technologies Corporation have clinical programs, either independently or with

collaborators, in therapeutic fields other than cancer, such as asthma and allergy treatments and for use as vaccine adjuvants, that also potentially compete with our drug candidates.

Many of our competitors are substantially larger than we are and have greater capital resources, research and development staffs and facilities than we have. In addition, many of our competitors are more experienced than we are in drug discovery, development and commercialization, obtaining regulatory approvals and drug manufacturing and marketing.

We anticipate that the competition with our products and technologies will be based on a number of factors including product efficacy, safety, availability and price. The timing of market introduction of our products and competitive products will also affect competition among products. We expect the relative speed with which we can develop products, complete the clinical trials and approval processes and supply commercial quantities of the products to the market to be important competitive factors. Our competitive position will also depend upon our ability to attract and retain qualified personnel, to obtain patent protection or otherwise develop proprietary products or processes and protect our intellectual property, and to secure sufficient capital resources for the period between technological conception and commercial sales.

Competition for technical and management personnel is intense in our industry, and we may not be able to sustain our operations or grow if we are unable to attract and retain key personnel.

Our success is highly dependent on the retention of principal members of our technical and management staff, including Dr. Sudhir Agrawal. Dr. Agrawal serves as our Chief Executive Officer and Chief Scientific Officer. Dr. Agrawal has made significant contributions to the field of oligonucleotide-based drug candidates, and has led the discovery and development of our compounds targeted to TLRs. He is named as an inventor on over 380 patents and patent applications worldwide. Dr. Agrawal provides us leadership for management, research and development activities. The loss of Dr. Agrawal's services would be detrimental to our ongoing scientific progress and the execution of our business plan.

We are a party to an employment agreement with Dr. Agrawal that expires on October 19, 2010, but automatically extends annually for an additional year. This agreement may be terminated by us or Dr. Agrawal for any reason or no reason at any time upon notice to the other party. We do not carry key man life insurance for Dr. Agrawal.

Furthermore, our future growth will require hiring a number of qualified technical and management personnel. Accordingly, recruiting and retaining such personnel in the future will be critical to our success. There is intense competition from other companies and research and academic institutions for qualified personnel in the areas of our activities. If we are not able to continue to attract and retain, on acceptable terms, the qualified personnel necessary for the continued development of our business, we may not be able to sustain our operations or growth.

Regulatory Risks

We may not be able to obtain marketing approval for products resulting from our development efforts.

All of the drug candidates that we are developing or may develop in the future will require additional research and development, extensive preclinical studies and clinical trials, and regulatory approval prior to any commercial sales. This process is lengthy, often taking a number of years, is uncertain, and is expensive. Since our inception, we have conducted clinical trials of a number of compounds. Currently, we are conducting clinical trials of IMO-2125 and IMO-2055.

We may need to address a number of technological challenges in order to complete development of our products. Moreover, these products may not be effective in treating any disease or may prove to have undesirable or unintended side effects, unintended alteration of the immune system over time, toxicities or other characteristics that may preclude our obtaining regulatory approval or prevent or limit commercial use.

We are subject to comprehensive regulatory requirements, which are costly and time consuming to comply with; if we fail to comply with these requirements, we could be subject to adverse consequences and penalties.

The testing, manufacturing, labeling, advertising, promotion, export and marketing of our products are subject to extensive regulation by governmental authorities in Europe, the United States and elsewhere throughout the world.

In general, submission of materials requesting permission to conduct clinical trials may not result in authorization by the FDA or any equivalent foreign regulatory agency to commence clinical trials. Further, permission to continue ongoing trials may be withdrawn by the FDA or other regulatory agencies at any time after initiation, based on new information available after the initial authorization to commence clinical trials. In addition, submission of an application for marketing approval to the relevant regulatory agency following completion of clinical trials may not result in the regulatory agency approving the application if applicable regulatory criteria are not satisfied, and may result in the regulatory agency requiring additional testing or information.

Any regulatory approval of a product may contain limitations on the indicated uses for which the product may be marketed or requirements for costly post-marketing testing and surveillance to monitor the safety or efficacy of the product. Any product for which we obtain marketing approval, along with the facilities at which the product is manufactured, any post-approval clinical data and any advertising and promotional activities for the product will be subject to continual review and periodic inspections by the FDA and other regulatory agencies.

Both before and after approval is obtained, violations of regulatory requirements may result in:

- the regulatory agency's delay in approving, or refusal to approve, an application for marketing of a product;
- restrictions on our products or the manufacturing of our products;
- withdrawal of our products from the market;
- warning letters;
- voluntary or mandatory recall;
- fines;
- suspension or withdrawal of regulatory approvals;
- product seizure;
- refusal to permit the import or export of our products;
- injunctions or the imposition of civil penalties; and
- criminal penalties.

We have only limited experience in regulatory affairs and our products are based on new technologies; these factors may affect our ability or the time we require to obtain necessary regulatory approvals.

We have only limited experience in filing the applications necessary to gain regulatory approvals. Moreover, the products that result from our research and development programs will likely be based on new technologies and new therapeutic approaches that have not been extensively tested in humans. The regulatory requirements governing these types of products may be more rigorous than for conventional drugs. As a result, we may experience a longer regulatory process in connection with obtaining regulatory approvals of any product that we develop.

Risks Relating to Collaborators

We need to establish additional collaborative relationships in order to succeed.

If we do not reach agreements with additional collaborators in the future, we may fail to meet our business objectives. We believe collaborations can provide us with expertise and resources. If we cannot enter into additional collaboration agreements, we may not be able to obtain the expertise and resources necessary to achieve our business objectives. We face, and will continue to face, significant competition in seeking appropriate collaborators. Moreover, collaboration arrangements are complex and time consuming to negotiate, document and implement. We may not be successful in our efforts to establish and implement collaborations or other alternative arrangements. The terms of any collaborations or other arrangements that we establish, if any, may not be favorable to us.

The failure of these collaborative relationships could delay our drug development or impair commercialization of our products and could materially harm our business and might accelerate our need for additional capital.

Any collaboration that we enter into may not be successful. The success of our collaboration arrangements, if any, will depend heavily on the efforts and activities of our collaborators. Possible future collaborations have risks, including the following:

- disputes may arise in the future with respect to the ownership of rights to technology developed with future collaborators;
- disagreements with future collaborators could delay or terminate the research, development or commercialization of products, or result in litigation or arbitration;
- future collaboration agreements are likely to be for fixed terms and subject to termination by our collaborators in the event of a material breach or lack of scientific progress by us;
- future collaborators are likely to have the first right to maintain or defend our intellectual property rights and, although we would likely have the right to assume the maintenance and defense of our intellectual property rights if our collaborators do not, our ability to do so may be compromised by our collaborators' acts or omissions;
- future collaborators may utilize our intellectual property rights in such a way as to invite litigation that could jeopardize or invalidate our intellectual property rights or expose us to potential liability;
- future collaborators may change the focus of their development and commercialization efforts. Pharmaceutical and biotechnology companies historically have re-evaluated their priorities following mergers and consolidations, which have been common in recent years in these industries. The ability of our products to reach their potential could be limited if future collaborators decrease or fail to increase spending relating to such products;
- future collaborators may underfund or not commit sufficient resources to the testing, marketing, distribution or development of our products; and
- future collaborators may develop alternative products either on their own or in collaboration with others, or encounter conflicts of interest or changes in business strategy or other business issues, which could adversely affect their willingness or ability to fulfill their obligations to us.

Given these risks, it is possible that any collaborative arrangements into which we enter may not be successful.

Our existing collaborations and any collaborations we enter into in the future may not be successful.

An important element of our business strategy includes entering into strategic collaborations with corporate collaborators, primarily large pharmaceutical companies, for the development, commercialization, marketing and distribution of some of our drug candidates. In December 2007, we entered into an exclusive, worldwide license agreement with Merck KGaA to research, develop, and commercialize products containing our TLR9 agonists for treatment of cancer, excluding cancer vaccines. In December 2006, we entered into an exclusive license and research collaboration with Merck & Co. to research, develop, and commercialize vaccine products containing our

TLR7, 8, and 9 agonists in the fields of cancer, infectious diseases, and Alzheimer's disease. In May 2005, we entered into a collaboration with Novartis to discover, develop and potentially commercialize TLR9 agonists that are identified as potential treatments for asthma and allergies. The failure of these collaborations or any others we enter into in the future could delay our drug development or impair commercialization of our products and could materially harm our business and might accelerate our need for additional capital.

The success of our collaboration arrangements, if any, will depend heavily on the efforts and activities of our collaborators. Our existing collaborations have risks, including the following:

- our collaborators control the development of the drug candidates being developed with our technologies and compounds including the timing of development;
- our collaborators may control the public release of information regarding the developments, and we may not be able to make announcements or data presentations on a schedule favorable to us;
- disputes may arise in the future with respect to the ownership of rights to technology developed with our collaborators;
- disagreements with our collaborators could delay or terminate the research, development or commercialization of products, or result in litigation or arbitration;
- we may have difficulty enforcing the contracts if any of our collaborators fail to perform;
- our collaborators may terminate their collaborations with us, which could make it difficult for us to attract new collaborators or adversely affect the perception of us in the business or financial communities;
- our collaboration agreements are likely to be for fixed terms and subject to termination by our collaborators in the event of a material breach or lack of scientific progress by us;
- our collaborators may have the first right to maintain or defend our intellectual property rights and, although we would likely have the right to assume the maintenance and defense of our intellectual property rights if our collaborators do not, our ability to do so may be compromised by our collaborators' acts or omissions;
- our collaborators may utilize our intellectual property rights in such a way as to invite litigation that could jeopardize or invalidate our intellectual property rights or expose us to potential liability;
- our collaborators may change the focus of their development and commercialization efforts. Pharmaceutical and biotechnology companies historically have re-evaluated their priorities following mergers and consolidations, which have been common in recent years in these industries. The ability of our products to reach their potential could be limited if our collaborators decrease or fail to increase spending relating to such products;
- our collaborators may underfund or not commit sufficient resources to the testing, marketing, distribution or development of our products; and
- our collaborators may develop alternative products either on their own or in collaboration with others, or encounter conflicts of interest or changes in business strategy or other business issues, which could adversely affect their willingness or ability to fulfill their obligations to us.

Collaborations with pharmaceutical companies and other third parties often are terminated or allowed to expire by the other party. Such terminations or expirations may adversely affect us financially and could harm our business reputation in the event we elect to pursue collaborations that ultimately expire or are terminated in such a manner.

Risks Relating to Intellectual Property

If we are unable to obtain patent protection for our discoveries, the value of our technology and products will be adversely affected.

Our patent positions, and those of other drug discovery companies, are generally uncertain and involve complex legal, scientific and factual questions. Our ability to develop and commercialize drugs depends in significant part on our ability to:

- obtain patents;
- obtain licenses to the proprietary rights of others on commercially reasonable terms;
- operate without infringing upon the proprietary rights of others;
- prevent others from infringing on our proprietary rights; and
- protect trade secrets.

We do not know whether any of our patent applications or those patent applications that we license will result in the issuance of any patents. Our issued patents and those that may be issued in the future, or those licensed to us, may be challenged, invalidated or circumvented, and the rights granted thereunder may not provide us proprietary protection or competitive advantages against competitors with similar technology. Furthermore, our competitors may independently develop similar technologies or duplicate any technology developed by us. Because of the extensive time required for development, testing and regulatory review of a potential product, it is possible that, before any of our products can be commercialized, any related patent may expire or remain in force for only a short period following commercialization, thus reducing any advantage provided by the patent.

Because patent applications in the United States and many foreign jurisdictions are typically not published until 18 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 we or they were the first to make the inventions claimed in issued patents or pending patent applications, or that we or they were the first to file for protection of the inventions set forth in these patent applications.

Third parties may own or control patents or patent applications and require us to seek licenses, which could increase our development and commercialization costs, or prevent us from developing or marketing products.

We may not have rights under some patents or patent applications related to our products. Third parties may own or control these patents and patent applications in the United States and abroad. Therefore, in some cases, to develop, manufacture, sell or import some of our products, we or our collaborators may choose to seek, or be required to seek, licenses under third party patents issued in the United States and abroad or under patents that might issue from United States and foreign patent applications. In such an event, we would be required to pay license fees or royalties or both to the licensor. If licenses are not available to us on acceptable terms, we or our collaborators may not be able to develop, manufacture, sell or import these products.

We may lose our rights to patents, patent applications or technologies of third parties if our licenses from these third parties are terminated. In such an event, we might not be able to develop or commercialize products covered by the licenses.

Currently, we have not in-licensed any patents or patent applications related to our TLR-targeted drug candidate programs. However in the field of antisense technology we are party to five royalty-bearing license agreements under which we have acquired rights to patents, patent applications and technology of third parties. Under these licenses we are obligated to pay royalties on net sales by us of products or processes covered by a valid claim of a patent or patent application licensed to us. We also are required in some cases to pay a specified percentage of any sublicense income that we may receive. These licenses impose various commercialization, sublicensing, insurance and other obligations on us.

Our failure to comply with these requirements could result in termination of the licenses. These licenses generally will otherwise remain in effect until the expiration of all valid claims of the patents covered by such licenses or upon earlier termination by the parties. The issued patents covered by these licenses expire at various dates ranging from 2014 to 2022. If one or more of these licenses is terminated, we may be delayed in our efforts, or be unable, to develop and market the products that are covered by the applicable license or licenses.

We may become involved in expensive patent litigation or other proceedings, which could result in our incurring substantial costs and expenses or substantial liability for damages or require us to stop our development and commercialization efforts.

There has been substantial litigation and other proceedings regarding patent and other intellectual property rights in the biotechnology industry. We may become a party to various types of patent litigation or other proceedings regarding intellectual property rights from time to time even under circumstances where we are not practicing and do not intend to practice any of the intellectual property involved in the proceedings. For instance, in 2002, 2003, and 2005, we became involved in interference proceedings declared by the United States Patent and Trademark Office, or USPTO, for certain of our antisense and ribozyme patents. All of these interferences have since been resolved. We are neither practicing nor intending to practice the intellectual property that is associated with any of these interference proceedings.

The cost to us of any patent litigation or other proceeding even if resolved in our favor, could be substantial. Some of our competitors may be able to sustain the cost of such litigation or proceedings more effectively than we can because of their substantially greater financial resources. If any patent litigation or other proceeding is resolved against us, we or our collaborators may be enjoined from developing, manufacturing, selling or importing our drugs without a license from the other party and we may be held liable for significant damages. We may not be able to obtain any required license on commercially acceptable terms or at all.

Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace. Patent litigation and other proceedings may also absorb significant management time.

Risks Relating to Product Manufacturing, Marketing and Sales and Reliance on Third Parties

Because we have limited manufacturing experience, facilities or infrastructure, we are dependent on third-party manufacturers to manufacture products for us. If we cannot rely on third-party manufacturers, we will be required to incur significant costs and devote significant efforts to establish our own manufacturing facilities and capabilities.

We have limited manufacturing experience and no manufacturing facilities, infrastructure or clinical or commercial scale manufacturing capabilities. In order to continue to develop our products, apply for regulatory approvals and ultimately commercialize products, we need to develop, contract for or otherwise arrange for the necessary manufacturing capabilities.

We currently rely upon third parties to produce material for nonclinical and clinical testing purposes and expect to continue to do so in the future. We also expect to rely upon third parties to produce materials that may be required for the commercial production of our products. Our current and anticipated future dependence upon others for the manufacture of our drug candidates may adversely affect our future profit margins and our ability to develop drug candidates and commercialize any drug candidates on a timely and competitive basis. We currently do not have any long term supply contracts and rely on only one contract manufacturer.

There are a limited number of manufacturers that operate under the FDA's cGMP regulations capable of manufacturing our products. As a result, we may have difficulty finding manufacturers for our products with adequate capacity for our needs. If we are unable to arrange for third party manufacturing of our products on a timely basis, or to do so on commercially reasonable terms, we may not be able to complete development of our products or market them.

Reliance on third party manufacturers entails risks to which we would not be subject if we manufactured products ourselves, including:

- reliance on the third party for regulatory compliance and quality assurance;
- the possibility of breach of the manufacturing agreement by the third party because of factors beyond our control;
- the possibility of termination or nonrenewal of the agreement by the third party, based on its own business priorities, at a time that is costly or inconvenient for us;
- the potential that third party manufacturers will develop know-how owned by such third party in connection with the production of our products that is necessary for the manufacture of our products; and
- reliance upon third party manufacturers to assist us in preventing inadvertent disclosure or theft of our proprietary knowledge.

Additionally, contract manufacturers may not be able to manufacture our TLR-targeted drug candidates at a cost or in quantities necessary to make them commercially viable. To date, our third-party manufacturers have met our manufacturing requirements, but we cannot be assured that they will continue to do so. Furthermore, changes in the manufacturing process or procedure, including a change in the location where the drug is manufactured or a change of a third-party manufacturer, may require prior FDA review and approval in accordance with the FDA's cGMP regulations. There are comparable foreign requirements. This review may be costly and time-consuming and could delay or prevent the launch of a product. The FDA or similar foreign regulatory agencies at any time may also implement new standards, or change their interpretation and enforcement of existing standards for manufacture, packaging or testing of products. If we or our contract manufacturers are unable to comply, we or they may be subject to regulatory action, civil actions or penalties.

We have no experience selling, marketing or distributing products and no internal capability to do so.

If we receive regulatory approval to commence commercial sales of any of our products, we will face competition with respect to commercial sales, marketing and distribution. These are areas in which we have no experience. To market any of our products directly, we would need to develop a marketing and sales force with technical expertise and with supporting distribution capability. In particular, we would need to recruit a large number of experienced marketing and sales personnel. Alternatively, we could engage a pharmaceutical or other healthcare company with an existing distribution system and direct sales force to assist us. However, to the extent we entered into such arrangements, we would be dependent on the efforts of third parties. If we are unable to establish sales and distribution capabilities, whether internally or in reliance on third parties, our business would suffer materially.

If third parties on whom we rely for clinical trials do not perform as contractually required or as we expect, we may not be able to obtain regulatory approval for or commercialize our products and our business may suffer.

We do not have the ability to independently conduct the clinical trials required to obtain regulatory approval for our products. We depend on independent clinical investigators, contract research organizations and other third party service providers in the conduct of the clinical trials of our products and expect to continue to do so. We have contracted with contract research organizations to manage our current Phase 1 clinical trial of IMO-2125 in patients with chronic hepatitis C virus infection. We rely heavily on these parties for successful execution of our clinical trials, but do not control many aspects of their activities. We are responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, the FDA requires us to comply with standards, commonly referred to as good clinical practices, for conducting, recording and reporting clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected. Our reliance on third parties that we do not control does not relieve us of these responsibilities and requirements. Third parties may not complete activities on schedule or may not conduct our clinical trials in accordance with regulatory requirements or our stated protocols. The failure of these third parties to carry out their obligations could delay or prevent the development, approval and

commercialization of our products. If we seek to conduct any of these activities ourselves in the future, we will need to recruit appropriately trained personnel and add to our infrastructure.

The commercial success of any drug candidates that we may develop will depend upon the degree of market acceptance by physicians, patients, third party payors and others in the medical community.

Any products that we ultimately bring to the market, if they receive marketing approval, may not gain market acceptance by physicians, patients, third party payors and others in the medical community. If these products do not achieve an adequate level of acceptance, we may not generate significant product revenue and we may not become profitable. The degree of market acceptance of our drug candidates, if approved for commercial sale, will depend on a number of factors, including:

- the prevalence and severity of any side effects, including any limitations or warnings contained in the product's approved labeling;
- the efficacy and potential advantages over alternative treatments;
- the ability to offer our drug candidates for sale at competitive prices;
- relative convenience and ease of administration;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- the strength of marketing and distribution support and the timing of market introduction of competitive products; and
- publicity concerning our products or competing products and treatments.

Even if a potential product displays a favorable efficacy and safety profile, market acceptance of the product will not be known until after it is launched. Our efforts to educate the medical community and third party payors on the benefits of our drug candidates may require significant resources and may never be successful. Such efforts to educate the marketplace may require more resources than are required by conventional technologies marketed by our competitors.

If we are unable to obtain adequate reimbursement from third party payors for any products that we may develop or acceptable prices for those products, our revenues and prospects for profitability will suffer.

Most patients rely on Medicare, Medicaid, private health insurers, and other third party payors to pay for their medical needs, including any drugs we may market. If third party payors do not provide adequate coverage or reimbursement for any products that we may develop, our revenues and prospects for profitability will suffer. Congress enacted a limited prescription drug benefit for Medicare recipients in the Medicare Prescription Drug and Modernization Act of 2003. While the program established by this statute may increase demand for our products, if we participate in this program, our prices will be negotiated with drug procurement organizations for Medicare beneficiaries and are likely to be lower than we might otherwise obtain. Non-Medicare third party drug procurement organizations may also base the price they are willing to pay on the rate paid by drug procurement organizations for Medicare beneficiaries.

A primary trend in the United States healthcare industry is toward cost containment. In addition, in some foreign countries, particularly the countries of the European Union, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take six months or longer after the receipt of regulatory marketing approval for a product. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost effectiveness of our drug candidates or products to other available therapies. The conduct of such a clinical trial could be expensive and result in delays in commercialization of our products. These further clinical trials would require additional time, resources and expenses. If reimbursement of our products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our prospects for generating revenue, if any, could be adversely affected and our business may suffer.

Third party payors are challenging the prices charged for medical products and services, and many third party payors limit reimbursement for newly-approved healthcare products. In particular, third party payors may limit the indications for which they will reimburse patients who use any products that we may develop. Cost control initiatives could decrease the price we might establish for products that we may develop, which would result in lower product revenues to us.

We face a risk of product liability claims and may not be able to obtain insurance.

Our business exposes us to the risk of product liability claims that is inherent in the manufacturing, testing and marketing of human therapeutic drugs. We face an inherent risk of product liability exposure related to the testing of our drug candidates in human clinical trials and will face an even greater risk if we commercially sell any products. Regardless of merit or eventual outcome, liability claims and product recalls may result in:

- decreased demand for our drug candidates and products;
- damage to our reputation;
- regulatory investigations that could require costly recalls or product modifications;
- withdrawal of clinical trial participants;
- costs to defend related litigation;
- substantial monetary awards to trial participants or patients, including awards that substantially exceed our product liability insurance, which we would then have to pay using other sources, if available, and would damage our ability to obtain liability insurance at reasonable costs, or at all, in the future;
- loss of revenue;
- the diversion of management's attention away from managing our business; and
- the inability to commercialize any products that we may develop.

Although we have product liability and clinical trial liability insurance that we believe is adequate, this insurance is subject to deductibles and coverage limitations. We may not be able to obtain or maintain adequate protection against potential liabilities. If we are unable to obtain insurance at acceptable cost or otherwise protect against potential product liability claims, we will be exposed to significant liabilities, which may materially and adversely affect our business and financial position. These liabilities could prevent or interfere with our commercialization efforts.

Risks Relating to an Investment in Our Common Stock

Our corporate governance structure, including provisions in our certificate of incorporation and by-laws, our stockholder rights plan and Delaware law, may prevent a change in control or management that stockholders may consider desirable.

Section 203 of the Delaware General Corporation Law and our certificate of incorporation, by-laws, and stockholder rights plan contain provisions that might enable our management to resist a takeover of our company or discourage a third party from attempting to take over our company. These provisions include:

- a classified board of directors,
- limitations on the removal of directors,
- limitations on stockholder proposals at meetings of stockholders,
- the inability of stockholders to act by written consent or to call special meetings, and
- the ability of our board of directors to designate the terms of and issue new series of preferred stock without stockholder approval.

In addition, Section 203 of the Delaware General Corporation Law imposes restrictions on our ability to engage in business combinations and other specified transactions with significant stockholders. These provisions could have the effect of delaying, deferring, or preventing a change in control of us or a change in our management that stockholders may consider favorable or beneficial. These provisions could also discourage proxy contests and make it more difficult for you and other stockholders to elect directors and take other corporate actions. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock.

Our stock price has been and may in the future be extremely volatile. In addition, because an active trading market for our common stock has not developed, our investors' ability to trade our common stock may be limited. As a result, investors may lose all or a significant portion of their investment.

Our stock price has been volatile. During the period from January 1, 2006 to February 29, 2008, the closing sales price of our common stock, as adjusted to reflect the one-for-eight reverse split of our common stock effected on June 29, 2006, ranged from a high of $13.29 per share to a low of $2.36 per share. The stock market has also experienced significant price and volume fluctuations, and the market prices of biotechnology companies in particular have been highly volatile, often for reasons that have been unrelated to the operating performance of particular companies. The market price for our common stock may be influenced by many factors, including:

- results of clinical trials of our drug candidates or those of our competitors;
- the regulatory status of our drug candidates;
- failure of any of our drug candidates, if approved, to achieve commercial success;
- the success of competitive products or technologies;
- regulatory developments in the United States and foreign countries;
- our success in entering into collaborative agreements;
- developments or disputes concerning patents or other proprietary rights;
- the departure of key personnel;
- variations in our financial results or those of companies that are perceived to be similar to us;
- our cash resources;
- the terms of any financing conducted by us;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors and issuance of new or changed securities analysts' reports or recommendations; and
- general economic, industry and market conditions.

In addition, our common stock has historically been traded at low volume levels and may continue to trade at low volume levels. As a result, any large purchase or sale of our common stock could have a significant impact on the price of our common stock and it may be difficult for investors to sell our common stock in the market without depressing the market price for the common stock or at all.

As a result of the foregoing, investors may not be able to resell their shares at or above the price they paid for such shares. Investors in our common stock must be willing to bear the risk of fluctuations in the price of our common stock and the risk that the value of their investment in our stock could decline.

Item 1B. ***Unresolved Staff Comments***

None.

Item 2. ***Properties***

In October 2006, we entered into a lease agreement for approximately 26,000 square feet of newly built-out laboratory and office space located in Cambridge, Massachusetts for a term commencing June 1, 2007 and expiring on May 31, 2014. We have specified rights to sublease this facility and a five-year renewal option.

Item 3. ***Legal Proceedings***

None.

Item 4. ***Submission of Matters to a Vote of Security Holders***

None.

Executive Officers of Idera Pharmaceuticals

The following table sets forth the names, ages and positions of our executive officers as of March 1, 2008:

Name	Age	Position
Sudhir Agrawal, D. Phil	54	Chief Executive Officer, Chief Scientific Officer and Director
Louis J. Arcudi, III	47	Chief Financial Officer
Alice S. Bexon, MBChB	38	Vice President of Clinical Development
Timothy M. Sullivan, Ph.D	53	Vice President of Development Programs

Sudhir Agrawal, D. Phil., is our Chief Executive Officer and Chief Scientific Officer. He joined us in 1990 and has served as our Chief Scientific Officer since January 1993, our Senior Vice President of Discovery since March 1994, our President from February 2000 to October 2005, a director since March 1993 and our Chief Executive Officer since August 2004. Prior to his appointment as Chief Scientific Officer, he served as our Principal Research Scientist from February 1990 to January 1993 and as our Vice President of Discovery from December 1991 to January 1993. He served as Acting Chief Executive Officer from February 2000 until September 2001. Prior to joining us, Dr. Agrawal served as a Foundation Scholar at the Worcester Foundation for Experimental Biology from 1987 through 1991 and at the Medical Research Council's Laboratory of Molecular Biology in Cambridge, England from 1985 to 1986. Dr. Agrawal received a D. Phil. in chemistry in 1980 from Allahabad University in India. He has authored more than 260 research papers and reviews. He is a member of the editorial board of several scientific journals. Dr. Agrawal is co-author of more than 300 patents and patent applications worldwide.

Louis J. Arcudi, III is our Chief Financial Officer. He joined us in December 2007. Prior to joining us, Mr. Arcudi served as Vice President of Finance and Administration and Treasurer for Peptimmune, Inc., a biotechnology company, from 2003 to 2007. From 2000 to 2003 Mr. Arcudi was Senior Director of Finance and Administration at Genzyme Molecular Oncology Corporation, a division of Genzyme Corporation, a biotechnology company. He was Director of Finance Business Planning and Operations International at Genzyme Corporation from 1998-2000. Prior to joining Genzyme, he held finance positions with increasing levels of responsibility at Cognex Corporation, a supplier of machine vision systems, Millipore Corporation, a provider of technoligies, tools and services for bioscience, research and biopharmaceutical manufacturing, and General Motors Corporation, an automobile manufacturer. Mr. Arcudi received a M.B.A. from Bryant College and a B.S. in accounting and information systems from the University of Southern New Hampshire.

Alice S. Bexon, MBChB, joined us in January 2007 as our Vice President of Clinical Development. From April 2001 to January 2007, Dr. Bexon worked for Hoffmann-La Roche, Inc.'s Pharma Division, where she served initially as International Medical Leader for the Oncology Business organization from April 2001 through June 2006 and subsequently as Clinical Science Leader for Pharma Development Medical Oncology from July 2006 to January 2007. Dr. Bexon also served as Medical Director from 1998 to 2001 in the oncology business unit of Sanofi-Synthelabo's French affiliate (now sanofi-aventis), a pharmaceutical company. In addition, from 1997 to 1998 Dr. Bexon worked for the European Organization for Research and Treatment of Cancer (subsequently NDDO Oncology) in the Netherlands, and in 1997, she worked for Parexel International, a global bio/pharmaceutical

services organization, in France. Dr. Bexon received her MBChB (MD equivalent) from Bristol University Medical School in the United Kingdom in 1994 and her full General Medical Council registration to practice medicine the following year. She completed internships in internal medicine and general surgery at Newcastle's Freeman and North Tyneside General Hospitals in the UK and her oncology residency under Professor Jean-Pierre Armand at the Institut Gustave Roussy in Villejuif, France.

Timothy M. Sullivan, Ph.D., has been our Vice President of Development Programs since August 2004. He joined us in 2002 as Senior Director, Preclinical Drug Development. His prior professional experience includes positions as Executive Director of Non-clinical Drug Safety Evaluation for Purdue Pharma L.P., a pharmaceutical company, from 1999 to 2002 and Vice President of Eastern Operations for Oread, Inc., a contract drug development organization, from 1997 to 1999. Prior to 1997, Dr. Sullivan held a variety of technical management roles with other pharmaceutical companies and contract research organizations (Adria, Battelle, Roma Toxicology Centre), and in veterinary medicine (International Minerals & Chemical). Dr. Sullivan earned his B.S. in microbiology from Michigan State University in 1975. His graduate studies were at Purdue University, where he earned a M.S. degree in health physics in 1978 and a Ph.D. in toxicology in 1981.

PART II.

Item 5. ***Market For Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities***

Market Information

Our common stock has been listed on the NASDAQ Global Market under the symbol "IDRA" since December 10, 2007. Prior to December 10, 2007, our common stock was listed on the American Stock Exchange under the symbol "IDP".

The following table sets forth, for the periods indicated, the high and low sales prices per share of our common stock, as adjusted to reflect the one-for-eight reverse split of our common stock effected on June 29, 2006, during each of the quarters set forth below as reported on the NASDAQ Global Market. These prices reflect inter-dealer prices without retail mark-up, mark-down or commission and may not necessarily represent actual transactions.

	High	Low
2006		
First Quarter	$ 5.52	$4.00
Second Quarter	5.44	1.60
Third Quarter	4.87	2.31
Fourth Quarter	6.99	3.65
2007		
First Quarter	$ 9.50	$5.22
Second Quarter	9.95	6.25
Third Quarter	9.22	6.21
Fourth Quarter	13.10	8.86

The number of common stockholders of record on February 29, 2008 was approximately 225.

Dividends

We have never declared or paid cash dividends on our common stock, and we do not expect to pay any cash dividends on our common stock in the foreseeable future.

Sales of Unregistered Securities

During the year ended December 31, 2007, we issued 225,744 shares of our common stock in unregistered sales of our equity securities to holders of warrants in connection with the exercise by such warrant holders of outstanding Idera common stock purchase warrants. We issued the 225,744 shares for the following consideration:

- 86,937 shares were issued upon the payment of a warrant exercise price of $5.84 per share;
- 91,482 shares were issued upon the payment of a warrant exercise price of $8.00 per share; and
- 47,325 shares were issued pursuant to the cashless exercise provisions of the warrants through the surrender of the right to purchase 89,782 shares.

Idera received approximately $1.2 million of cash proceeds in aggregate upon the exercise of the foregoing warrants.

The issuances of shares of Idera's common stock upon exercise of outstanding warrants described above were exempt from registration under the Securities Act of 1933 pursuant to an exemption from registration under Section 4(2) of the Securities Act of 1933, as amended, Rule 506 of Regulation D promulgated thereunder, and/or Regulation S promulgated thereunder as not involving a public offering. The shares of common stock issued by Idera upon these warrant exercises have been registered for resale by the holders under Idera's Registration Statement on Form S-3, File No. 333-109630.

Item 6. ***Selected Financial Data***

The following selected financial data are derived from our financial statements. The data should be read in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations and the financial statements, related notes, and other financial information included herein.

	Year Ended December 31,				
	2007	2006	2005	2004	2003
	(In thousands, except per share data)				
Statement of Operations Data:					
Alliance revenue	$ 7,981	$ 2,421	$ 2,467	$ 942	$ 897
Operating expenses:					
Research and development	13,195	12,705	11,170	8,249	9,898
General and administrative	9,513	6,276	5,120	5,616	8,386
Total operating expenses	22,708	18,981	16,290	13,865	18,284
Loss from operations	(14,727)	(16,560)	(13,823)	(12,923)	(17,387)
Other income (expense):					
Investment income, net	1,668	505	369	217	190
Interest expense	(149)	(425)	(252)	(29)	(118)
Gain on sale of securities, net	—	—	—	—	104
Loss before income taxes	(13,208)	(16,480)	(13,706)	(12,735)	(17,211)
Income tax provision	—	(45)	—	—	—
Net loss	(13,208)	(16,525)	(13,706)	(12,735)	(17,211)
Accretion of preferred stock dividend	—	—	—	(2,676)	(5,529)
Net loss applicable to common stockholders	$ (13,208)	$ (16,525)	$ (13,706)	$ (15,411)	$ (22,740)
Basic and diluted net loss per share	$ (0.62)	$ (0.99)	$ (0.99)	$ (1.03)	$ (2.69)
Accretion of preferred stock dividends	—	—	—	(0.22)	(0.87)
Net loss per share applicable to common stockholders	$ (0.62)	$ (0.99)	$ (0.99)	$ (1.25)	$ (3.56)
Shares used in computing basic and diluted net loss per common share(1)	21,221	16,625	13,886	12,364	6,382
Balance Sheet Data:					
Cash, cash equivalents and short-term investments	$ 23,743	$ 38,187	$ 8,376	$ 14,413	$ 13,668
Working capital	15,908	30,984	4,998	13,181	10,740
Total assets	27,714	40,541	9,989	15,391	14,410
Capital lease obligations	70	10	17	—	—
Note payable	1,143	—	—	—	—
4% convertible subordinated notes payable	—	5,033	5,033	—	—
9% convertible subordinated notes payable	—	—	—	—	1,306
Series A convertible preferred stock	—	—	—	—	5
Accumulated deficit	(342,734)	(329,526)	(313,000)	(299,294)	(283,883)
Total stockholders' equity (deficit)	7,719	12,237	(335)	12,769	10,526

(1) Computed on the basis described in Note 12 of notes to financial statements appearing elsewhere in this Annual Report on Form 10-K.

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

Overview

We are engaged in the discovery and development of DNA- and RNA-based drug candidates targeted to Toll-Like Receptors, or TLRs, to treat infectious diseases, autoimmune diseases, cancer, and asthma and allergies, and for use as vaccine adjuvants. Drug candidates are compounds that we are developing and have not been approved for any commercial use. TLRs are specific receptors present in immune system cells that recognize the DNA or RNA of pathogens such as bacteria or viruses and initiate an immune response. Relying on our expertise in DNA and RNA chemistry, we have designed and created proprietary TLR agonists and antagonists to modulate immune responses. A TLR agonist is a compound that stimulates an immune response through the targeted TLR. A TLR antagonist is a compound that blocks activation of an immune response through the targeted TLR.

We are focused on developing TLR-targeted compounds for the potential treatment of infectious diseases, autoimmune diseases, cancer. IMO-2125, a TLR9 agonist, is our lead drug candidate for infectious diseases and is in a Phase 1 clinical trial in patients with chronic hepatitis C virus infection who have not responded to current standard of care therapy. We are also evaluating RNA-based compounds that act as agonists of TLR7 and TLR8 in our infectious disease program. In our autoimmune disease program we have identified DNA-based compounds that act as antagonists of TLR7 and TLR9. Our cancer treatment research program is focused on evaluation of our agonists of TLR7 and TLR8.

We are also collaborating with three pharmaceutical companies to advance our TLR-targeted compounds in multiple disease areas. We are collaborating with Merck KGaA for cancer treatment excluding cancer vaccines, with Merck & Co. for vaccine adjuvants, and with Novartis, for treatment of asthma and allergies.

At December 31, 2007, we had an accumulated deficit of $342.7 million. We may incur substantial operating losses in future periods. We do not expect to generate significant funds until we successfully complete development and obtain marketing approval for products, either alone or in collaborations with third parties, which we expect will take a number of years. In order to commercialize our products, we need to address a number of technological challenges and to comply with comprehensive regulatory requirements. In 2008, we expect that our research and development expenses will be higher than our research and development expenses in 2007 as we expand our IMO-2125 development program and accelerate our early-stage programs on TLR anatagonists and on agonists of TLR7 and TLR8.

Critical Accounting Policies and Estimates

This management's discussion and analysis of financial condition and results of operations is based on 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 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. On an ongoing basis, management evaluates its estimates and judgments, including those related to revenue recognition. Management bases its estimates and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

We regard an accounting estimate or assumption underlying our financial statements as a "critical accounting estimate" where (i) the nature of the estimate or assumption is material due to the level of subjectivity and judgment necessary to account for highly uncertain matters or the susceptibility of such matters to change; and (ii) the impact of the estimates and assumptions on financial condition or operating performance is material.

Our significant accounting policies are described in Note 2 of the notes to our financial statements appearing elsewhere in this Annual Report on Form 10-K. Not all of these significant policies, however, fit the definition of critical accounting policies and estimates. We believe that our accounting policies relating to revenue recognition and stock-based compensation fit the description of critical accounting estimates.

Revenue Recognition

We recognize revenue in accordance with Securities and Exchange Commission, or SEC, Staff Accounting Bulletin No. 104, or SAB 104, that requires four basic criteria be met before revenue can be recognized:

- persuasive evidence of an arrangement exists;
- delivery has occurred, services have been rendered or obligations have been satisfied;
- the fee is fixed or determinable; and
- collectibility is reasonably assured.

Determination of the last three criteria are based on management's judgments regarding the fixed nature of the fee charged for services rendered or products delivered and the collectibility of these fees. Should changes in

conditions cause management to determine these criteria are not met for any future transactions, revenues recognized for any reporting period could be adversely affected.

When evaluating multiple element arrangements, the Company considers whether the components of the arrangement represent separate units of accounting as defined in Emerging Issues Task Force Issue No. 00-21, *"Revenue Arrangements with Multiple Deliverables"*.

We recognize license fees and other upfront fees, not specifically tied to a separate earnings process, ratably over the term of our contractual obligation or our estimated continuing involvement under the research arrangement.

We recognize service and research and development revenue when the services are performed.

For payments that are specifically associated with a separate earnings process, we recognize revenue when the specific performance obligation is completed. Performance obligations typically consist of significant milestones in the development life cycle of the related technology, such as initiating clinical trials, filing for approval with regulatory agencies and obtaining approvals from regulatory agencies.

Stock-Based Compensation

We adopted Statement of Financial Accounting Standards, or SFAS, No. 123R, *"Share-Based Payment,"* on January 1, 2006. This statement requires us to recognize all share-based payments to employees as expense in the financial statements based on their fair values. Under SFAS No. 123R, we are required to record compensation expense over an award's vesting period based on the award's fair value at the date of grant. Our policy is to charge the fair value of stock options as an expense on a straight-line basis over the vesting period. We are also required to record compensation cost for the non-vested portion of previously granted stock-based awards outstanding at the date of adoption over the requisite service periods for the individual awards based on the fair value estimated in accordance with the original provisions of SFAS No. 123 adjusted for forfeitures as required by SFAS 123R. As permitted under SFAS 123R, we use the Black-Scholes option pricing model to estimate the fair value of stock option grants. The Black-Scholes model relies on a number of key assumptions to calculate estimated fair values, including average risk-free interest rate, expected dividend yield, expected life and expected volatility. The assumed risk-free interest rate is the U.S. Treasury security rate with a term equal to the expected life of the option. Our assumed dividend yield of zero is based on the fact that we have never paid cash dividends to common stockholders and have no present intention to pay cash dividends. The assumed expected option life is (1) based on the average of the option term and the option vesting period for standard options which meet the SEC's Staff Accounting Bulletin 107 criteria for utilizing this simplified method and (2) based on actual experience of options held by employees holding options with similar characteristics for those options that do not meet the SEC's criteria for using the simplified method. The expected volatility assumption is based on the actual stock-price volatility over a period equal to the expected life of the option.

We elected to adopt SFAS No. 123R on a modified prospective basis. As a result, the financial statements for periods prior to January 1, 2006, do not include compensation cost calculated under the fair value method. Prior to January 1, 2006, we applied Accounting Principles Board, or APB, Opinion No. 25, *"Accounting for Stock Issued to Employees",* and therefore, recorded the intrinsic value of stock-based compensation as an expense.

If factors change and we employ different assumptions for estimating stock-based compensation expense in future periods, or if we decide to use a different valuation model, the stock-based compensation expense we recognize in future periods may differ significantly from what we have recorded in the current period and could materially affect our operating income, net income and earnings per share. It may also result in a lack of comparability with other companies that use different models, methods and assumptions. The Black-Scholes option- pricing model was developed for use in estimating the fair value of traded options that have no vesting restrictions and are fully transferable. These characteristics are not present in our option grants. Existing valuation models, including the Black-Scholes, may not provide reliable measures of the fair values of our stock-based compensation.

Results of Operations

Years ended December 31, 2007, 2006 and 2005

Revenues

Total revenues increased by approximately $5.6 million, or 233%, from $2.4 million in 2006 to $8.0 million in 2007 and decreased by $0.1 million, or 4%, from $2.5 million in 2005 to $2.4 million in 2006. The increase in revenue in 2007 primarily reflects a full year of license fee revenue and research reimbursements recognized under our collaboration agreement with Merck & Co., which we entered into in December 2006. In December 2006, we received a $20.0 million upfront payment under our collaboration agreement with Merck & Co. We are recognizing the $20.0 million upfront payment over the potential research term under the agreement. Of this $20.0 million, we recognized $5.0 million as revenue in 2007. In 2007, we also recognized $1.1 million in revenue from research reimbursements under our collaboration agreement with Merck & Co. and $0.3 million in milestone revenue from another collaboration agreement. These increases were partially offset by a decrease in license fee revenue recognized under our collaboration agreement with Novartis signed in May 2005. In February 2007, Novartis elected to extend our research collaboration with them. As a result of such extension, Novartis paid us an additional $1.0 million in May 2007. We are amortizing the $4.0 million upfront payment received from Novartis in July 2005 and the extension payment over the expected research term with $1.3 million recognized as revenue in 2007 as compared to $1.7 million in 2006. We did not recognize any revenue in 2007 under our collaboration with Merck KGaA, which became effective on February 4, 2008.

The decrease in revenue in 2006 from 2005 primarily reflects the inclusion in 2005 of revenues related to a reimbursement of third party expenses in 2005 under our collaboration agreement with Novartis. This decrease was partially offset by $1.7 million representing a full year of license fee revenue recognized in 2006 under the same collaboration with Novartis and $0.3 million in license fee revenue recognized in 2006 under our collaboration agreement with Merck & Co.

Our revenues for 2007, 2006 and 2005 were comprised of payments under various collaboration and licensing agreements for research and development, including reimbursement of third party expenses, and license fees, sublicense fees, and royalty payments. We also had revenue in 2007 from a milestone reached under one of our collaborations.

Research and Development Expenses

Research and development expenses increased by approximately $0.5 million, or 4%, from $12.7 million in 2006 to $13.2 million in 2007 and increased by approximately $1.5 million, or 13%, from $11.2 million in 2005 to $12.7 million in 2006. The increase in research and development expenses from 2006 to 2007 was primarily due to increases in clinical and non-clinical trial costs for IMO-2125, discovery employee costs, which are reimbursed, in connection with the Merck & Co. collaboration, costs associated with hiring additional drug development employees and stock-based compensation. The 2007 increase was offset, in part, by lower IND-enabling external expenses related to IMO-2125 and a decrease in IMO-2055 external development expenses. The increase in research and development expenses from 2005 to 2006 was primarily due to increased costs associated with IMO-2125 preclinical studies in infectious disease, higher payroll costs, an increase in stock-based compensation and costs associated with the formation of our Oncology Clinical Advisory Board. These increased expenses were

offset, in part, by third party expenses incurred by us in 2005 related to the Novartis collaboration, which were not incurred in 2006.

	Year Ended December 31,			Annual Percentage Change	
	2007	2006	2005	2007/2006	2006/2005
		(In millions)			
IMO-2055 External Development Expense	$ 1.9	$ 2.9	$ 3.9	(34)%	(26)%
IMO-2125 External Development Expense	1.2	—	—	—	—
Other Drug Development Expense	4.5	5.4	2.7	(17)%	100%
Basic Discovery Expense	5.6	4.4	4.6	27%	(4)%
Total Research and Development Expense	$13.2	$12.7	$11.2	4%	13%

In the preceding table, research and development expense is set forth in the following four categories:

IMO-2055 External Development Expenses. These expenses include external expenses that we have incurred in connection with IMO-2055, our lead compound being developed for oncology applications. These external expenses reflect payments to independent contractors and vendors for drug development trials and studies conducted after the initiation of IMO-2055 clinical trials and drug manufacturing and related costs but exclude internal costs such as payroll and overhead. Since 2003, when we commenced clinical development of IMO-2055, we have incurred approximately $12.5 million in external expenses through December 31, 2007 in connection with IMO-2055. IMO-2055 external development expenses decreased by $1.0 million, or 34%, from $2.9 million in 2006 to $1.9 million in 2007 and decreased by $1.0 million, or 26%, from $3.9 million in 2005 to $2.9 million in 2006. The decrease in IMO-2055 expenses in 2007 compared to 2006 was primarily attributable to lower clinical trial expenses as we closed enrollment of a Phase 2 trial in June 2007 and a Phase 1 trial in July 2007 and to a decrease in nonclinical safety studies of IMO-2055. These decreases were partially offset by increases associated with additional IMO-2055 trials that we commenced in 2007. The decrease in IMO-2055 expenses in 2006 compared to 2005 was primarily attributable to lower Phase 2 trial expenses as we approached full enrollment of our Phase 2 clinical trial and to a decrease in drug supply expenses as a result of IMO-2055 manufacture expense recognition during 2005 but not during 2006. These decreases were partially offset by expenses for a Phase 1 clinical trial which we initiated in October 2005, and an increase in additional nonclinical safety studies of IMO-2055.

In December 2007, we initiated a Phase 1b trial of IMO-2055 in combination with Avastin® and Tarceva® in non-small cell lung cancer patients whose cancer had progressed during a prior course of standard therapy. We are currently recruiting patients for this trial, which was designed with a target enrollment of up to 40 patients. We have agreed with Merck KGaA that we will complete the Phase 2 renal cell cancer trial and the Phase 1 refractory solid tumor chemotherapy trial. We also have agreed with Merck KGaA that we will continue to conduct on its behalf the on-going Phase 1b non-small cell lung cancer trial and that we may initiate the proposed Phase 1b colorectal cancer trial. Merck KGaA has agreed to reimburse us for costs associated with these two Phase 1b clinical trials that we incur after February 4, 2008, which is the date our agreement with Merck KGaA became effective.

IMO-2125 External Development Expenses. These expenses include external expenses that we have incurred in connection with IMO-2125, our lead compound initially being developed for chronic hepatitis C virus infection. These external expenses reflect payments to independent contractors and vendors for drug development activities conducted after the initiation of the first IMO-2125 clinical trial but exclude internal costs such as payroll and overhead. We commenced clinical development of IMO-2125 in May 2007 and since then we have incurred approximately $1.2 million in external development expenses through December 31, 2007 in connection with IMO-2125, including costs associated with the initiation of our Phase 1 clinical trial and related non-clinical studies and manufacturing process development.

In May 2007, we submitted an IND for IMO-2125 to the FDA, and in September 2007, we initiated a Phase 1 study of IMO-2125 in patients with chronic hepatitis C virus infection who have not responded to the current standard of care treatment. We plan to enroll up to 40 patients in four cohorts at escalating IMO-2125 dose levels, with four weeks of treatment. Of the ten patients per cohort, eight will be randomized to receive IMO-2125 treatment and two will be randomized to receive placebo treatment. The trial is designed to assess the safety of IMO-2125 at each dose level. Secondary objectives include assessments of the effects of IMO-2125 on hepatitis C

virus RNA levels and parameters of immune system activation. We anticipate interim results from this trial to be available in the first half of 2009.

Other Drug Development Expenses. These expenses include internal and external expenses associated with preclinical development of identified compounds in anticipation of advancing these compounds into clinical development in addition to internal costs associated with products in clinical development.

The internal and external expenses associated with preclinical compounds include payments to contract vendors for manufacturing and the related stability studies, preclinical studies including animal toxicology and pharmacology studies and professional fees, as well as payroll and overhead. Expenses associated with products in clinical development include costs associated with our Hepatitis C Clinical Advisory Board, our Oncology Clinical Advisory Board, payroll and overhead.

Other drug development expenses decreased by $0.9 million, or 17%, from $5.4 million in 2006 to $4.5 million in 2007 and increased by $2.7 million, or 100%, from $2.7 million in 2005 to $5.4 million in 2006. The decrease in 2007 was primarily due to decreases in manufacturing and other pre-IND direct external expenses related to IMO-2125. The 2007 decrease is computed based on costs incurred only through April 2007 since costs incurred after the May 2007 submission of the IMO-2125 IND have been shown separately in the above table. The decrease in other drug development expenses during 2007 was offset, in part, by costs associated with the hiring of additional drug development employees, increased stock-based compensation and allocated costs associated with the move to our new facility during the second quarter of 2007. The increase in these expenses in 2006 was primarily attributable to manufacturing and IND-enabling safety study costs associated with IMO-2125, costs associated with the formation of our Oncology Clinical Advisory Board and an increase in compensation costs attributable to the hiring of additional employees and our adoption of SFAS No. 123R. These increases were offset in part by third party expenses incurred by us in 2005 related to the Novartis collaboration, which were not incurred in 2006. We had direct external expenses of approximately $0.4 million, $2.4 million, and $0.3 million related to IMO-2125, before we commenced clinical development, for the years ended December 31, 2007, 2006, and 2005, respectively.

Basic Discovery Expenses. These expenses include our internal and external expenses relating to the continuing discovery and development of our TLR-targeted programs, including agonists and antagonists of TLRs 7, 8 and 9. These expenses reflect payments for laboratory supplies, external research, and professional fees, as well as payroll and overhead. Basic discovery expenses increased by $1.2 million, or 27%, from $4.4 million in 2006 to $5.6 million in 2007 and decreased by $0.2 million, or 4%, from $4.6 million in 2005 to $4.4 million in 2006. The increase in 2007 as compared to 2006 was primarily attributable to an increase in payroll expenses relating to work under our Merck & Co. collaboration, an increase in expenses for laboratory supplies and allocated costs associated with the move to our new facility during the second quarter of 2007. The decrease in these expenses in 2006 compared to 2005 was primarily attributable to a decrease in external research as some of our collaborative agreements with academic institutions were completed. The decrease was also attributable to a decrease in compensation expense as a result of allocating more executive compensation to other departments, offset partially by an increase in compensation costs attributable, in part, to our adoption of SFAS No. 123R. The decrease in 2006 expenses was partially offset by an increase in allocation of overhead costs as a result of higher facility expenses.

We do not know if we will be successful in developing IMO-2125 or any other drug candidate from our research and development programs. At this time, without knowing the results of our ongoing clinical trials of IMO-2125 and without an established plan for future clinical tests of IMO-2125 or other drug candidates, we cannot reasonably estimate or know the nature, timing and costs of the efforts that will be necessary to complete the remainder of the development of, or the period, if any, in which material net cash inflows may commence from, IMO-2125 or any other drug candidate from our research and development programs. Moreover, the clinical development of IMO-2125 or any other drug candidate from our research and development programs is subject to numerous risks and uncertainties associated with the duration and cost of clinical trials, which vary significantly over the life of a project as a result of unanticipated events arising during clinical development, including with respect to:

- the number of clinical sites included in the trials;
- the time required to enroll suitable subjects;

- the number of subjects that ultimately participate in the trials; and
- the efficacy and safety results of our clinical trials and the number of additional required clinical trials.

General and Administrative Expenses

General and administrative expenses increased by approximately $3.2 million, or 51%, from $6.3 million in 2006 to $9.5 million in 2007 and increased by approximately $1.2 million, or 24%, from $5.1 million in 2005 to $6.3 million in 2006. General and administrative expenses consisted primarily of salary expense, stock compensation expense, consulting fees and professional legal fees associated with our patent applications and maintenance, our regulatory filing requirements, and business development.

The $3.2 million increase from 2006 to 2007 primarily reflects increased employee costs, higher stock-based compensation expense for employees and consultants, higher professional fees associated with marketing research and legal services including legal expenses in connection with the Merck KGaA collaboration signed in December 2007, implementation of Sarbanes-Oxley Section 404 requirements, costs associated with the move to our new facility and costs accrued in anticipation of payments to be made to our former Chief Financial Officer under the transition agreement entered into with him in May 2007. The $1.2 million increase from 2005 to 2006 primarily reflects an increase in compensation expenses associated with the addition of employees in 2006, higher compensation levels in 2006, and higher stock compensation expenses resulting from our adoption of SFAS No. 123R. The increase also reflects higher consulting and legal expenses as a result of the Merck & Co. collaboration signed in December 2006. These increases were partially offset by lower patent preparation costs resulting from a consolidation of our patent portfolio and greater efficiencies in maintaining our patents.

Investment Income, Net

Investment income increased by approximately $1.2 million, or 240%, from $0.5 million in 2006 to $1.7 million in 2007 and increased by approximately $0.1 million, or 25%, from $0.4 million in 2005 to $0.5 million in 2006. The increase in 2007 is primarily attributable to higher cash and investment balances.

Interest Expense

Interest expense decreased by approximately $0.3 million, or 75%, from $0.4 million in 2006 to $0.1 million in 2007 and increased by approximately $0.1 million, or 33%, from $0.3 million in 2005 to $0.4 million in 2006. The decrease in 2007 and the increase in 2006 is due to the inclusion in 2006 of a full year of interest and amortization of deferred financing costs associated with our 4% convertible notes we issued in May 2005 in the aggregate principal amount of approximately $5.0 million. The 4% convertible notes were converted into shares of our common stock in February 2007. The decrease in 2007 is partially offset by interest expense associated with our note payable.

Income Tax Expense

In 2006, we recorded approximately $45,000 as income tax expense as a result of income subject to the alternative minimum tax. We did not have income subject to the alternative minimum tax for the years ended 2007 or 2005.

Net Loss Applicable to Common Stockholders

As a result of the factors discussed above, our net loss applicable to common stockholders amounted to $13.2 million for the year ended December 31, 2007, as compared to approximately $16.5 million for the year ended December 31, 2006 and $13.7 million for the year ended December 31, 2005. We have incurred losses of $82.5 million since January 1, 2001. We have incurred net losses of $260.2 million prior to December 31, 2000 during which time we were involved in the development of antisense technology. Since our inception, we had an accumulated deficit of $342.7 million through December 31, 2007. We may incur substantial operating losses in future periods.

Net Operating Loss Carryforwards

As of December 31, 2007, we had cumulative net operating loss carryforwards of approximately $277.7 million and $55.8 million available to reduce federal and state taxable income which expire through 2027 and 2012, respectively. In addition, we had cumulative federal and state tax credit carryforwards of $5.7 million and $4.1 million, respectively, available to reduce federal and state income taxes, which expire through 2027 and 2022, respectively. The Tax Reform Act of 1986 contains provisions, which limit the amount of net operating loss and credit carryforwards that companies may utilize in any one year in the event of cumulative changes in ownership over a three-year period in excess of 50%. We have completed several financings since the effective date of the Tax Reform Act of 1986, which as of December 31, 2007, have resulted in ownership changes in excess of 50%, as defined under the Act and that may significantly limit our ability to utilize our net operating loss and tax credit carryforwards. We have not prepared an analysis to determine the effect of the ownership change limitation on our ability to utilize our net operating loss and tax credit carryforwards. Ownership changes in future periods may place additional limits on our ability to utilize net operating loss and tax credit carryforwards.

Liquidity and Capital Resources

Sources of Liquidity

We require cash to fund our operating expenses, to make capital expenditures and to pay debt service. Historically, we have funded our cash requirements primarily through the following:

- equity and debt financing;
- license fees and research funding under collaborative and license agreements;
- interest income; and
- lease financings.

In January 2008, we sent notice to holders of our warrants to purchase common stock that were issued in August 2004 with an expiration date of August 27, 2009, or the August 2004 Warrants, that under the terms of the warrant agreement, we intend to redeem on March 31, 2008 any August 2004 Warrants not exercised as of that date for a redemption price of $0.08 per share of common stock underlying the August 2004 Warrants. The August 2004 Warrants can be exercised by cash payment only and have an exercise price of $5.36 per share of common stock. Following such notice and through February 29, 2008, we have received approximately $580,000 in proceeds from the exercise of August 2004 Warrants to purchase 108,129 shares of common stock. As of February 29, 2008, August 2004 Warrants to purchase 166,521 shares of common stock remained outstanding.

In December 2007, we entered into an exclusive, worldwide license agreement with Merck KGaA to research, develop and commercialize products containing our TLR9 agonists for the treatment of cancer, excluding cancer vaccines. Under the terms of the agreement, in February 2008 Merck KGaA paid us a $40.0 million upfront license fee in Euros of which we received $39.7 million due to foreign currency exchange rates.

In June 2007, we executed a promissory note in the aggregate principal amount of $1.3 million in favor of General Electric Capital Corporation. The promissory note was secured by specific laboratory, manufacturing, office and computer equipment and was subject to the terms of a master security agreement between us and GE. The promissory note bore interest at a fixed rate of 11% per annum, and was payable in 48 consecutive monthly installments of principal and accrued interest, with the first installment having been paid out of the proceeds of the borrowing. In March 2008, we paid approximately $1.2 million to GE as payment in full of all obligations outstanding under our promissory note with GE. The payment represented approximately $1.1 million of prinicipal amount outstanding plus accrued interest through the date of payment and a prepayment premium of approximately $0.1 million. The note has been cancelled.

In December 2006, we entered into an exclusive license and research collaboration agreement with Merck & Co. to research, develop, and commercialize vaccine products containing our TLR7, 8 and 9 agonists in the fields of cancer, infectious diseases, and Alzheimer's disease. Under the terms of the agreement, Merck & Co. paid us a $20.0 million license fee in December 2006. In addition, in connection with the execution of the license and

collaboration agreement, we issued and sold to Merck & Co. 1,818,182 shares of our common stock for a price of $5.50 per share resulting in an aggregate purchase price of $10.0 million.

In March 2006, we raised approximately $9.8 million in gross proceeds from a private placement to institutional investors. In the private placement, we sold for a purchase price of $3.52 per share 2,769,886 shares of common stock and warrants to purchase 2,077,414 shares of common stock. The warrants have an exercise price of $5.20 per share, are fully exercisable and will expire if not exercised on or prior to September 24, 2011. The warrants may be exercised by cash payment only. The net proceeds to us from the offering, excluding the proceeds of any future exercise of the warrants, totaled approximately $8.9 million.

In March 2006, we secured a purchase commitment from an investor to purchase from us up to $9.8 million of our common stock during the period from June 24, 2006 through December 31, 2006 in up to three drawdowns made by us at our discretion. Prior to December 31, 2006, we drew down the full $9.8 million through the sale of 1,904,296 shares of common stock at a price of $5.12 per share resulting in net proceeds to us, excluding the proceeds of any future exercise of the warrants, described below, of approximately $8.9 million. The agent fees and other costs directly related to securing the commitment amounted to approximately $0.9 million. As part of the arrangement, we issued warrants to the investor to purchase 761,718 shares of common stock at an exercise price of $5.92 per share. The warrants are exercisable by cash payment only. The warrants are exercisable at any time on or prior to September 24, 2011. On or after March 24, 2010, we may redeem the warrants for $0.08 per warrant share following notice to the warrant holders if the closing sales price of the common stock exceeds 250% of the warrant exercise price for 15 consecutive trading days prior to the notice. We may exercise our right to redeem the warrants by providing at least 30 days prior written notice to the holders of the warrants.

In May 2005, we entered into a research collaboration and option agreement and a license, development and commercialization agreement with Novartis to discover, develop and potentially commercialize immune modulatory oligonucleotides that are TLR9 agonists and that are identified as potential treatments for asthma and allergies. Under the terms of the agreements, Novartis paid us a $4.0 million license fee in July 2005. In February 2007, Novartis elected to extend the research phase of the collaboration by one year until May 2008 and, in connection with the extension, paid us $1.0 million in 2007.

In May 2005, we issued approximately $5.0 million in principal amount of 4% convertible subordinated notes due April 30, 2008 to overseas investors. Interest on the 4% convertible subordinated notes was payable in arrears on December 15, 2005 for the period from issuance to that date, and thereafter semi-annually on April 30 and October 30 and at maturity or upon conversion. We had the option to pay interest on the 4% convertible subordinated notes in cash or in shares of common stock at the then current market value of the common stock. In 2005, we issued 19,963 shares of common stock in payment of interest on the 4% convertible subordinated notes. All other interest payments have been paid in cash. The net proceeds from the offering totaled approximately $4.6 million. In February 2007, we elected to automatically convert the 4% convertible subordinated notes in the aggregate principal amount of $5.0 million into 706,844 shares of our common stock effective on February 20, 2007. We were entitled to exercise the right of automatic conversion because the volume-weighted average of the closing prices of the our common stock for a period of ten consecutive trading days exceeded $8.90, which represented 125% of the conversion price of the notes.

Cash Flows

As of December 31, 2007, we had approximately $23.7 million in cash and cash equivalents and investments, a net decrease of approximately $14.4 million from December 31, 2006. We used $15.8 million of cash from operating activities during 2007. The $15.8 million primarily reflects our $13.2 million net loss for 2007, as adjusted for non-cash revenue and expenses, including stock-based compensation, depreciation and amortization. It also reflects the changes in deferred revenue associated with revenue recognition under our collaborative arrangements and changes in our accounts receivable, prepaid expenses and accounts payable and accrued expenses.

The net cash provided by investing activities during 2007 of $0.9 million reflects our purchase of approximately $50.5 million in securities offset by our sale of $37.8 million of securities and the proceeds of

approximately $15.2 million from securities that matured in 2007. The net cash used in investing activities also reflects $1.6 million investment in laboratory, office and computer equipment.

The net cash provided by financing activities during 2007 of $2.9 million, reflects the net proceeds from the issuance of a $1.3 million promissory note and the $1.8 million in proceeds received from the exercise of stock options and warrants during 2007.

Funding Requirements

We have incurred operating losses in all fiscal years except 2002 and had an accumulated deficit of $342.7 million at December 31, 2007. We had cash, cash equivalents and short-term investments of $23.7 million at December 31, 2007. We believe that based on our current operating plan our existing cash, cash equivalents and short-term investments, including the $39.7 million upfront payment that we received in February 2008 under our agreement with Merck KGaA, will be sufficient to fund our operations at least through December 31, 2009. We may incur substantial operating losses in future periods. These losses, among other things, have had and will continue to have an adverse effect on our stockholders' equity, total assets and working capital.

We have received no revenues from the sale of drugs. To date, almost all of our revenues have been from collaborative and license agreements. We have devoted substantially all of our efforts to research and development, including clinical trials, and we have not completed development of any drugs. Because of the numerous risks and uncertainties associated with developing drugs, we are unable to predict the extent of any future losses, whether or when any of our products will become commercially available, or when we will become profitable, if at all.

We do not expect to generate significant additional funds internally until we successfully complete development and obtain marketing approval for products, either alone or in collaboration with third parties, which we expect will take a number of years. In addition, we have no committed external sources of funds. Should we be unable to raise sufficient funds in the future, we may be required to significantly curtail our operating plans and possibly relinquish rights to portions of our technology or products. In addition, increases in expenses or delays in clinical development may adversely impact our cash position and require further cost reductions. No assurance can be given that we will be able to operate profitably on a consistent basis, or at all, in the future.

We believe that the key factors that will affect our internal and external sources of cash are:

- the success of our clinical and preclinical development programs;
- the success of our existing strategic collaborations with Merck KGaA, Merck & Co. and Novartis;
- the cost, timing and outcome of regulatory reviews;
- our ability to enter into new strategic collaborations with biotechnology and pharmaceutical companies and the success of such collaborations.

Additional financing may not be available to us when we need it or may not be available to us on favorable terms. We could be required to seek funds through arrangements with collaborators or others that may require us to relinquish rights to some of our technologies, drug candidates or drugs that we would otherwise pursue on our own. In addition, if we raise additional funds by issuing equity securities, our then existing stockholders will experience dilution. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends, and are likely to include rights that are senior to the holders of our common stock. Any additional debt financing or equity that we raise may contain terms, such as liquidation and other preferences, or liens or other restrictions on our assets, which are not favorable to us or our stockholders. The terms of any financing may adversely affect the holdings or the rights of existing stockholders. If we are unable to obtain adequate funding on a timely basis or at all, we may be required to significantly curtail one or more of our discovery or development programs.

Contractual Obligations

As of December 31, 2007, our contractual commitments were as follows:

	Payments Due by Period				
Contractual Obligations	**Total**	**Less than 1 year**	**2-3 years**	**4-5 years**	**After 5 years**
			(In thousands)		
Operating Lease Commitments	$8,304	$ 1,178	$ 2,480	$ 2,657	$ 1,989
Capital Lease Commitments	70	20	41	9	—
Notes Payable	1,143	266	683	194	—
Total	$9,517	$ 1,464	$ 3,204	$ 2,860	$ 1,989

Our only material lease commitment relates to our facility in Cambridge, Massachusetts. Under our license agreements, we are obligated to make milestone payments upon achieving specified milestones and to pay royalties to our licensors. These contingent milestone and royalty payment obligations are not included in the above table. As of December 31, 2007, we have no off balance sheet arrangements.

Item 7A. ***Quantitative and Qualitative Disclosures About Market Risk***

As of December 31, 2007, we have no assets and liabilities related to nondollar-denominated currencies.

We maintain investments in accordance with our investment policy. The primary objectives of our investment activities are to preserve principal, maintain proper liquidity to meet operating needs and maximize yields. Although our investments are subject to credit risk, our investment policy specifies credit quality standards for our investments and limits the amount of credit exposure from any single issue, issuer or type of investments. We do not own derivative financial investment instruments in our investment portfolio.

Based on a hypothetical ten percent adverse movement in interest rates, the potential losses in future earnings, fair value of risk sensitive financial instruments, and cash flows are immaterial, although the actual effects may differ materially from the hypothetical analysis.

Item 8. ***Financial Statements and Supplementary Data***

All financial statements required to be filed hereunder are filed as listed under Item 15(a) and are incorporated herein by this reference.

Quarterly Operating Results (Unaudited)

The following table presents the unaudited statement of operations data for each of the eight quarters in the period ended December 31, 2007. The information for each of these quarters is unaudited, but has been prepared on the same basis as the audited financial statements appearing elsewhere in this Annual Report on Form 10-K. In our opinion, all necessary adjustments, consisting only of normal recurring adjustments, have been made to present fairly the unaudited quarterly results when read in conjunction with the audited financial statements and the notes thereto appearing elsewhere in this document. These operating results are not necessarily indicative of the results of operations that may be expected for any future period.

	Three Months Ended							
	Dec. 31, 2007	Sep. 30, 2007	Jun. 30, 2007	Mar. 31, 2007	Dec. 31, 2006	Sep. 30, 2006	Jun. 30, 2006	Mar. 31, 2006
	(In thousands, except per share data)							
Statement of Operations Data:								
Alliance revenues	$ 2,233	$ 1,970	$ 1,949	$ 1,829	$ 592	$ 572	$ 622	$ 636
Operating expenses:								
Research and development	3,907	3,479	2,990	2,819	3,046	3,009	3,665	2,986
General and administrative	3,144	2,033	2,383	1,953	2,302	1,395	1,312	1,267
Total operating expenses	7,051	5,512	5,373	4,772	5,348	4,404	4,977	4,253
Loss from operations	(4,818)	(3,542)	(3,424)	(2,943)	(4,756)	(3,832)	(4,355)	(3,617)
Investment income	346	416	429	477	179	120	134	72
Interest expense	(34)	(40)	(13)	(62)	(107)	(107)	(106)	(105)
Loss before income taxes	(4,506)	(3,166)	(3,008)	(2,528)	(4,684)	(3,819)	(4,327)	(3,650)
Income tax provision	—	—	—	—	(45)	—	—	—
Net loss applicable to common stockholders	$ (4,506)	$ (3,166)	$ (3,008)	$ (2,528)	$ (4,729)	$ (3,819)	$ (4,327)	$ (3,650)
Basic and diluted net loss per share applicable to common stockholders	$ (0.21)	$ (0.15)	$ (0.14)	$ (0.12)	$ (0.26)	$ (0.22)	$ (0.26)	$ (0.26)
Shares used in computing basic and diluted loss per common share(1)	21,485	21,346	21,254	20,787	18,352	17,223	16,718	14,154

(1) Computed on the basis described in Note 12 of notes to financial statements appearing elsewhere in this Annual Report on Form 10-K.

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

None.

Item 9A. ***Controls and Procedures***

Disclosure Controls and Procedures

Our management, with the participation of our principal executive officer and principal financial officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act) as of December 31, 2007. In designing and evaluating our disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and our management necessarily applied its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on this evaluation, our chief executive officer and chief financial officer concluded that as of December 31, 2007, our disclosure controls and procedures were (1) designed to ensure that

material information relating to us is made known to our chief executive officer and chief financial officer by others, particularly during the period in which this report was prepared, and (2) effective, in that they provide reasonable assurance that information required to be disclosed by us in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms.

Internal Control Over Financial Reporting

a) Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rule 13a-15(f) and 15d-15(f) promulgated under the Exchange Act as a process designed by, or under the supervision of, the Company's principal executive and principal financial officers and effected by the Company's board of directors, management and other personnel, 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 and includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- 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
- 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. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. 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.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2007. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control — Integrated Framework*.

Based on our assessment, management believes that, as of December 31, 2007, our internal control over financial reporting is effective based on those criteria.

Our independent registered public accounting firm has issued an audit report on our internal control over financial reporting. This report appears below.

b) Attestation Report of the Independent Registered Public Accounting Firm

Report of Independent Registered Public Accounting Firm

The Board of Directors and Shareholders of Idera Pharmaceuticals, Inc.

We have audited Idera Pharmaceuticals, Inc.'s internal control over financial reporting as of December 31, 2007, based on criteria established in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (the COSO criteria). Idera Pharmaceuticals, Inc.'s management is responsible 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 Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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 (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) 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 (3) 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, Idera Pharmaceuticals, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2007, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the balance sheets of Idera Pharmaceuticals, Inc. as of December 31, 2007 and 2006, and the related statements of operations, stockholders' equity (deficit), and cash flows for each of the three years in the period ended December 31, 2007 of Idera Pharmaceuticals, Inc. and our report dated March 7, 2008 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Boston, Massachusetts
March 7, 2008

c) Changes in Internal Controls.

No change in our internal control over financial reporting occurred during the fiscal year ending December 31, 2007 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. ***Other Information.***

None.

PART III.

The response to the Part III items incorporate by reference certain sections of our Proxy Statement for our annual meeting of stockholders to be held on June 4, 2008.

Item 10. *Directors, Executive Officers, and Corporate Governance*

We have adopted a written code of business conduct and ethics that applies to our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. We have posted a current copy of the Code of Business Conduct and Ethics in the "Investor Center — Code of Ethics" section of our website, which is located at www.iderapharma.com. We intend to satisfy the disclosure requirements under Item 10 of Form 8-K regarding an amendment to, or waiver from, a provision of our code of business conduct and ethics by posting such information on our website at www.iderapharma.com.

The remainder of the response to this item is contained under the following captions in the 2008 Proxy Statement: "Proposal 1 — Election of Directors," "Section 16(a) Beneficial Ownership Reporting Compliance" and "Corporate Governance Information," which sections are incorporated herein by reference. See also Part I of this Annual Report on 10-K under the caption "Executive Officers of Idera Pharmaceuticals," which is incorporated herein by reference.

Item 11. *Executive Compensation*

The responses to this item are contained in the 2008 Proxy Statement under the captions: "Corporate Governance Information — Compensation Committee Interlocks and Insider Participation" and "Executive Compensation," which sections are incorporated herein by reference.

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

The response to this item is contained in the 2008 Proxy Statement under the caption "Security Ownership of Certain Beneficial Owners and Management" which section is incorporated herein by reference.

The disclosures required for securities authorized for issuance under equity compensation plans are contained in the 2008 Proxy Statement under the caption "Equity Compensation Plan Information."

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

The response to this item is contained in the 2008 Proxy Statement under the captions "Transactions with Related Persons," and "Corporate Governance Information — Director Independence," which sections are incorporated herein by reference.

Item 14. *Principal Accountant Fees and Services*

The response to this item is contained in the 2008 Proxy Statement under the caption "Independent Registered Public Accounting Firm Fees," which section is incorporated herein by reference.

PART IV.

Item 15. ***Exhibits and Financial Statement Schedules***

(a)(1) *Financial Statements.*

(2) We are not filing any financial statement schedules as part of this Annual Report on Form 10-K because they are not applicable or the required information is included in the financial statements or notes thereto.

(3) The list of Exhibits filed as a part of this Annual Report on Form 10-K is set forth on the Exhibit Index immediately preceding such Exhibits and is incorporated herein by this reference.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on this 11th day of March 2008.

Idera Pharmaceuticals, Inc.

By: /s/ Sudhir Agrawal
Sudhir Agrawal
Chief Executive Officer and
Chief Scientific Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, 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/ James B. Wyngaarden James B. Wyngaarden, M.D.	Chairman of the Board of Directors	March 11, 2008
/s/ Sudhir Agrawal Sudhir Agrawal, D. Phil	Chief Executive Officer, Chief Scientific Officer and Director (Principal Executive Officer)	March 11, 2008
/s/ Louis J. Arcudi, III Louis J. Arcudi, III	Chief Financial Officer (Principal Financial and Accounting Officer)	March 11, 2008
/s/ Youssef El Zein Youssef El Zein	Director	March 11, 2008
/s/ C. Keith Hartley C. Keith Hartley	Director	March 11, 2008
/s/ Robert W. Karr Robert W. Karr, M.D.	Director	March 11, 2008
/s/ Hans Mueller Hans Mueller, Ph.D.	Director	March 11, 2008
/s/ William S. Reardon William S. Reardon, C.P.A.	Director	March 11, 2008
/s/ Alison Taunton-Rigby Alison Taunton-Rigby, Ph.D., OBE	Director	March 11, 2008

IDERA PHARMACEUTICALS, INC.

INDEX TO FINANCIAL STATEMENTS
December 31, 2007

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and Stockholders of Idera Pharmaceuticals, Inc.

We have audited the accompanying balance sheets of Idera Pharmaceuticals, Inc. as of December 31, 2007 and 2006, and the related statements of operations, stockholders' equity (deficit), and cash flows for each of the three years in the period ended December 31, 2007. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Idera Pharmaceuticals, Inc. at December 31, 2007 and 2006, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2007, in conformity with U.S. generally accepted accounting principles.

As discussed in Note 2 to the financial statements, on January 1, 2006, the Company adopted the provisions of Statement of Financial Accounting Standards No. 123 (Revised 2004), " Share Based Payments " which requires the Company to recognize expense for all share-based payments based on their fair values.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Idera Pharmaceutical, Inc.'s internal control over financial reporting as of December 31, 2007, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 7, 2008 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Boston, Massachusetts
March 7, 2008

IDERA PHARMACEUTICALS, INC.

BALANCE SHEETS

(In thousands, except per share amounts)	December 31, 2007	December 31, 2006
ASSETS		
Current assets:		
Cash and cash equivalents	$ 12,588	$ 24,596
Short-term investments	11,155	13,591
Receivables	628	398
Prepaid expenses and other current assets	656	417
Total current assets	25,027	39,002
Property and equipment, net	1,964	622
Deferred financing costs	—	298
Non-current portion of prepaid expenses	104	—
Restricted cash	619	619
Total assets	$ 27,714	$ 40,541
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 1,177	$ 1,155
Accrued expenses	1,745	864
Current portion of capital lease	20	7
Current portion of note payable	266	—
Current portion of deferred revenue	5,911	5,992
Total current liabilities	9,119	8,018
4% convertible notes payable	—	5,033
Capital lease obligation, net of current portion	50	3
Note payable, net of current portion	877	—
Deferred revenue, net of current portion	9,874	15,250
Other liabilities	75	—
Total liabilities	19,995	28,304
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.01 par value, Authorized — 5,000 shares Series A convertible preferred stock, Designated — 1,500 shares, Issued and outstanding — 1 share at December 31, 2007 and 2006	—	—
Common stock, $0.001 par value, Authorized — 40,000 shares, Issued and outstanding — 21,569 and 20,458 shares at December 31, 2007 and 2006, respectively	22	20
Additional paid-in capital	350,423	341,743
Accumulated deficit	(342,734)	(329,526)
Accumulated other comprehensive income	8	—
Total stockholders' equity	7,719	12,237
Total liabilities and stockholders' equity	$ 27,714	$ 40,541

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

IDERA PHARMACEUTICALS, INC.

STATEMENTS OF OPERATIONS

(In thousands, except per share amounts)	Years Ended December 31, 2007	2006	2005
Alliance revenue	$ 7,981	$ 2,421	$ 2,467
Operating expenses:			
Research and development	13,195	12,705	11,170
General and administrative	9,513	6,276	5,120
Total operating expenses	22,708	18,981	16,290
Loss from operations	(14,727)	(16,560)	(13,823)
Other income (expense):			
Investment income, net	1,668	505	369
Interest expense	(149)	(425)	(252)
Loss before income taxes	(13,208)	(16,480)	(13,706)
Income tax provision	—	(45)	—
Net loss	$(13,208)	$(16,525)	$(13,706)
Basic and diluted net loss per common share	$ (0.62)	$ (0.99)	$ (0.99)
Shares used in computing basic and diluted net loss per common share	21,221	16,625	13,886

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

IDERA PHARMACEUTICALS, INC.

STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)

(In thousands)	Common Stock Number of Shares	Common Stock $0.001 Par Value	Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss)/Income	Total Stockholders' Equity (Deficit)
Balance, December 31, 2004	13,866	$ 14	$312,067	$(299,295)	$ (15)	$ 12,771
Exercise of common stock options and warrants and employee stock purchases	34	—	124	—	—	124
Issuance of stock and warrants for services and interest	28	—	348	—	—	348
Amortization of deferred compensation	—	—	25	—	—	25
Stock-based compensation from repriced options	—	—	100	—	—	100
Comprehensive income/(loss):						
Unrealized gain on marketable securities	—	—	—	—	4	4
Net loss	—	—	—	(13,706)	—	(13,706)
Total comprehensive loss	—	—	—	—	—	(13,702)
Balance, December 31, 2005	13,928	14	312,664	(313,001)	(11)	(334)
Sale of common stock	6,492	6	27,782	—	—	27,788
Exercise of common stock options and employee stock purchases	32	—	108	—	—	108
Issuance of stock for services	6	—	27	—	—	27
Non-employee stock options	—	—	238	—	—	238
Stock-based compensation	—	—	924	—	—	924
Comprehensive income/(loss):						
Unrealized gain on marketable securities	—	—	—	—	11	11
Net loss	—	—	—	(16,525)	—	(16,525)
Total comprehensive loss	—	—	—	—	—	(16,514)
Balance, December 31, 2006	20,458	$ 20	$341,743	$(329,526)	$ —	$ 12,237
Exercise of common stock options, warrants and employee stock purchases	334	1	1,769	—	—	1,770
Issuance of stock for services	7	—	44	—	—	44
Conversion of notes	707	1	4,766	—	—	4,767
Non-employee stock options	—	—	519	—	—	519
Stock-based compensation	63	—	1,582	—	—	1,582
Comprehensive income/(loss):						
Unrealized gain on marketable securities	—	—	—	—	8	8
Net loss	—	—	—	(13,208)	—	(13,208)
Total comprehensive loss	—	—	—	—	—	(13,200)
Balance, December 31, 2007	21,569	$ 22	$350,423	$(342,734)	$ 8	$ 7,719

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

IDERA PHARMACEUTICALS, INC.

STATEMENTS OF CASH FLOWS

(in thousands)	Years Ended December 31, 2007	2006	2005
Cash Flows from Operating Activities:			
Net loss	$(13,208)	$(16,525)	$(13,706)
Adjustments to reconcile net loss to net cash used in (provided by) operating activities —			
Loss from disposition of assets	6	—	2
Amortization of deferred compensation	—	—	25
Non-employee stock options	519	238	—
Stock-based compensation	1,582	924	100
Depreciation and amortization expense	318	228	171
Issuance of stock for services	44	27	36
Amortization of deferred financing costs	31	223	130
Non cash interest expense	—	34	101
Changes in operating assets and liabilities —			
Receivables	(230)	(222)	117
Prepaid expenses and other current assets	(264)	82	(165)
Accounts payable, accrued expenses, and other liabilities	899	(251)	(61)
Deferred revenue	(5,457)	17,841	2,706
Net cash (used in) provided by operating activities	(15,760)	2,599	(10,544)
Cash Flows from Investing Activities:			
Purchases of available-for-sale securities	(50,545)	(26,769)	(19,853)
Proceeds from sale of available-for-sale securities	37,814	7,975	16,850
Proceeds from maturities of available-for-sale securities	15,220	12,625	5,000
Increase in restricted cash	—	(619)	—
Purchases of property and equipment	(1,632)	(89)	(213)
Net cash provided by (used in) investing activities	857	(6,877)	1,784
Cash Flows from Financing Activities:			
Proceeds from issuance of convertible notes payable	—	—	5,033
Issuance costs from issuance of note	—	—	(431)
Sale of common stock and warrants, net of issuance costs	—	27,788	—
Net proceeds from issuance of note payable	1,278	—	—
Payments on notes payable	(135)	—	—
Proceeds from exercise of common stock options and warrants and employee stock purchases	1,770	108	124
Payments on capital lease	(18)	(7)	(3)
Net cash provided by financing activities	2,895	27,889	4,723
Net (decrease) increase in cash and cash equivalents	(12,008)	23,611	(4,037)
Cash and cash equivalents, beginning of period	24,596	985	5,022
Cash and cash equivalents, end of period	$ 12,588	$ 24,596	$ 985

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

IDERA PHARMACEUTICALS, INC.

NOTES TO FINANCIAL STATEMENTS
December 31, 2007

(1) Organization

Idera Pharmaceuticals, Inc. ("Idera" or the "Company") is a biotechnology company engaged in the discovery and development of DNA- and RNA-based drug candidates targeted to Toll-Like Receptors, or TLRs, to treat infectious diseases, autoimmune diseases, cancer, and asthma and allergies, and for use as vaccine adjuvants. Drug candidates are compounds that the Company is developing and have not been approved for any commercial use. TLRs are specific receptors present in immune system cells that recognize the DNA or RNA of pathogens such as bacteria or viruses and initiate an immune response. Relying on its expertise in DNA and RNA chemistry, the Company has designed and created proprietary TLR agonists and antagonists to modulate immune responses. A TLR agonist is a compound that stimulates an immune response through the targeted TLR. A TLR antagonist is a compound that blocks activation of an immune response through the targeted TLR.

The Company is focused on developing TLR-targeted compounds for the potential treatment of infectious diseases, autoimmune diseases, and cancer. IMO-2125, a TLR9 agonist, is the Company's lead drug candidate for infectious diseases. At present, a Phase 1 clinical trial of IMO-2125 is underway in patients with chronic hepatitis C virus infection who have not responded to current standard of care therapy. The Company's infectious disease program also includes evaluation of RNA-based compounds that act as agonists of TLR7 and TLR8. TLR7 and TLR8 agonists are referred to as stabilized immune modulatory RNA (SIMRA) compounds. The Company has evaluated these compounds in preclinical studies in human cell-based assays and *in vivo* in non-human primates and intends to further evaluate these compounds in preclinical models of infectious disease. In the Company's autoimmune disease program, it has identified DNA-based compounds that act as antagonists of TLR7 and TLR9. These compounds have been evaluated in various preclinical studies, including in mouse models of lupus and rheumatoid arthritis. The Company is conducting further preclinical studies to explore the potential of these novel compounds in multiple sclerosis and psoriasis. The Company's cancer treatment research program is focused on SIMRA agonists of TLR7 and TLR8. The Company intends to further evaluate these compounds in preclinical models of cancer.

Idera is also collaborating with three pharmaceutical companies to advance the Company's TLR-targeted compounds in multiple disease areas. The Company is collaborating with Merck KGaA for cancer treatment excluding cancer vaccines, with Merck & Co., Inc., or Merck & Co., for vaccine adjuvants, and with Novartis International Pharmaceutical, Ltd., or Novartis, for respiratory diseases. Merck KGaA and Merck & Co. are not related.

The Company has incurred operating losses in all fiscal years except 2002 and had an accumulated deficit of $342.7 million at December 31, 2007. The Company may incur substantial operating losses in future periods. The Company does not expect to generate significant funds internally until it successfully completes development and obtains marketing approval for products, either alone or in collaborations with third parties, which the Company expects will take a number of years. In order to commercialize its therapeutic products, the Company needs to address a number of technological challenges and to comply with comprehensive regulatory requirements.

(2) Summary of Significant Accounting Policies

(a) Basis of Presentation

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

The Company is subject to a number of risks and uncertainties similar to those of other companies of the same size within the biotechnology industry, such as uncertainty of clinical trial outcomes, uncertainty of additional funding and history of operating losses.

(b) Reclassification and Additional Disclosures

Certain amounts in the prior year's financial statements have been reclassified and certain additional disclosures have been made to such financial statements.

(c) Cash, Cash Equivalents and Short-Term Investments

The Company considers all highly liquid investments with maturities of 90 days or less when purchased to be cash equivalents. Cash and cash equivalents at December 31, 2007 and 2006 consisted of cash and money market funds. On December 31, 2006, certain corporate bonds that had maturity dates of less than 90 days at the time of purchase were also included as cash equivalents.

The Company accounts for investments in accordance with Statement of Financial Accounting Standards (SFAS) No. 115, "*Accounting for Certain Investments in Debt and Equity Securities*" (SFAS No. 115). Management determines the appropriate classification of marketable securities at the time of purchase. In accordance with SFAS No. 115, investments that the Company does not have the positive intent to hold to maturity are classified as "available-for-sale" and reported at fair market value. Unrealized gains and losses associated with available-for-sale investments are recorded in "Accumulated other comprehensive income" on the accompanying balance sheets. The amortization of premiums and accretion of discounts, and any realized gains and losses and declines in value judged to be other than temporary, and interest and dividends for all available-for-sale securities are included in "Investment income, net" on the accompanying statements of operations. The Company had no "held-to-maturity" investments, as defined by SFAS No. 115, at December 31, 2007 and 2006. The cost of securities sold is based on the specific identification method.

The Company had no realized gains or losses from available-for-sale securities in 2007, 2006 or 2005. There were no losses or permanent declines in value included in "investment income, net" for any securities for the years ended December 31, 2007, 2006 and 2005.

The Company had no long-term investments as of December 31, 2007 and 2006. Available-for-sale securities are classified as short-term regardless of the maturity date as the Company considers them available for use to fund operations within one year of the balance sheet date. Auction securities are highly liquid securities that have floating interest or dividend rates that reset periodically through an auctioning process that sets rates based on bids. Issuers include municipalities, closed-end bond funds and corporations. These securities can either be debt or preferred shares. The Company had no auction securities at December 31, 2007.

(d) Restricted Cash

As part of the operating lease entered into by the Company in October 2006 (see Note 9(a)), the Company was required to restrict $619,000 of cash for a security deposit. These funds are held in certificates of deposit securing a line of credit for the lessor. The restricted cash is expected to be reduced by approximately $103,000 upon each of the second, third and fourth anniversaries of the lease commencement date of June 2007, subject to certain conditions.

(e) Depreciation and Amortization

Depreciation and amortization are computed using the straight-line method based on the estimated useful lives of the related assets, as follows:

Asset Classification	Estimated Useful Life
Leasehold improvements	Life of lease
Laboratory equipment and other	3 – 5 years

(f) Revenue Recognition

The Company's revenue recognition policy complies with Staff Accounting Bulletin (SAB) No. 104, *Revenue Recognition.* Alliance revenues are comprised of payments under various collaboration and licensing agreements for research and development, including reimbursement of third party expenses, milestone payments, license fees, sublicense fees, and royalty payments. When evaluating multiple element arrangements, the Company considers whether the components of the arrangement represent separate units of accounting as defined in Emerging Issues Task Force Issue No. 00-21, *Revenue Arrangements with Multiple Deliverables.*

The Company recognizes license fees and other upfront fees, not specifically tied to a separate earnings process, ratably over the contractual obligation or continuing involvement under the collaboration agreement.

The Company recognizes service and research and development revenue when the services are performed.

For payments that are specifically associated with a separate earnings process, the Company recognizes revenue when the specific performance obligation is completed. Performance obligations typically consist of significant milestones in the development life cycle of the related technology, such as initiation of clinical trials, filing for approval with regulatory agencies and approvals by regulatory agencies.

Royalty income represents amounts earned under certain collaboration and license agreements and is recognized as earned, which generally occurs upon receipt of quarterly royalty statements from the licensee or, in the case of a contractually-stated minimum annual royalty arrangement, the greater of the amount actually earned or the guaranteed minimum amount.

(g) Financial Instruments

SFAS No. 107, *Disclosures About Fair Value of Financial Instruments*, requires disclosure of the estimated fair values of financial instruments. The Company's financial instruments consist of cash and cash equivalents, short-term investments, receivables, and convertible notes payable. The estimated fair values of these financial instruments approximates their carrying values as of December 31, 2007 and 2006, respectively. The estimated fair values have been determined through information obtained from market sources and management estimates. As of December 31, 2007 and 2006, the Company does not have any derivatives or any other financial instruments as defined by SFAS No. 133, *Accounting for Derivative and Hedging Instruments.*

(h) Comprehensive Income (Loss)

The Company applies SFAS No. 130, *Reporting Comprehensive Income*. Comprehensive loss is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from nonowner sources. Comprehensive loss for the years ended December 31, 2007, 2006 and 2005 is comprised of reported net loss and the change in net unrealized gains and losses on investments during each year, which is included in "Accumulated other comprehensive income" on the accompanying balance sheets.

(i) Net Loss per Common Share

The Company applies SFAS No. 128, *Earnings per Share* (SFAS No. 128). Under SFAS No. 128, basic and diluted net loss per common share is computed using the weighted average number of shares of common stock outstanding during the period. In addition, diluted net income per common share is calculated to give effect of stock options, convertible preferred stock and convertible debt (where the effect is not antidilutive) resulting in lower net income per share. The dilutive effect of outstanding stock options is reflected by the application of the treasury stock method under SFAS No. 128. Diluted net loss per common share is the same as basic net loss per common share for the years ended December 31, 2007, 2006 and 2005 as the effects of the Company's potential common stock equivalents are antidilutive (see Note 12).

(j) Segment Reporting

SFAS No. 131, *Disclosures About Segments of an Enterprise and Related Information*, (SFAS No. 131) establishes standards for reporting information regarding operating segments in annual financial statements and requires selected information for those segments to be presented in interim financial reports issued to stockholders. SFAS No. 131 also establishes standards for related disclosures about products and services and geographic areas.

To date, the Company has viewed its operations and manages its business as one operating segment. Accordingly, the Company operates in one segment, which is the business of discovering and developing novel therapeutics that modulate immune responses through Toll-like Receptors, or TLRs. As a result, the financial information disclosed herein represents all of the material financial information related to the Company's principal operating segment. For all of the periods presented, all of the Company's revenues were generated in the United States. As of December 31, 2007 and 2006, all assets were located in the United States.

(k) Stock-Based Compensation

The Company adopted SFAS No. 123R, *"Share-Based Payment*," (SFAS No. 123R) on January 1, 2006. This statement requires the Company to recognize all share-based payments to employees in the financial statements based on their fair values. Under SFAS No. 123R, the Company is required to record compensation expense over an award's vesting period based on the award's fair value at the date of grant. The Company elected to adopt SFAS No. 123R on a modified prospective basis; accordingly, the financial statements for periods prior to January 1, 2006 will not include compensation cost calculated under the fair value method. The Company's policy is to charge the fair value of stock options as an expense on a straight-line basis over the vesting period.

Prior to January 1, 2006, the Company applied Accounting Principles Board ("APB") Opinion No. 25, *"Accounting for Stock Issued to Employees,"* (APB No. 25) and therefore, recorded the intrinsic value of stock-based compensation as an expense. The following table illustrates the pro forma effect on net loss and net loss per share if the Company had applied the fair value recognition provisions of SFAS No. 123, *"Accounting for Stock-Based Compensation,"* (SFAS No. 123) to stock-based employee compensation for the year ended December 31, 2005. The year ended December 31, 2005 pro forma net loss and net loss per share of expensing the estimated fair value of stock options are not necessarily representative of the effects on reported net (loss) income for future years

because of the vesting period of the stock options, the potential for issuance of additional stock options in future years and changes to assumptions.

	2005 (In thousands, except per share data)
Net loss applicable to common stockholders, as reported	$ (13,706)
Less: stock-based compensation expense included in reported net loss	100
Add: stock-based employee compensation expense determined under fair value based method for all awards	(994)
Pro forma net loss applicable to common stockholders, as adjusted for the effect of applying SFAS No. 123	$ (14,600)
Basic and diluted net loss per common share —	
As reported	$ (0.99)
Pro forma	$ (1.05)

Prior to adopting SFAS No. 123R on January 1, 2006, the Company recorded changes in the intrinsic value of its repriced options in its statement of operations, including approximately $100,000 of stock compensation expense for the year ended December 31, 2005, which is shown in the above table. In accordance with SFAS No. 123R, the Company no longer includes changes in the intrinsic value of its repriced options in its statement of operations.

For the years ended December 31, 2007 and 2006, the Company included charges of approximately $1,509,000 and $924,000, respectively, in its statement of operations representing the stock compensation expense computed in accordance with SFAS No. 123R. There was no corresponding charge included in the statement of operations during the year ended December 31, 2005. The adoption of SFAS No. 123R had no effect on cash flows during 2007 or 2006. SFAS No. 123R decreased basic and diluted earnings per share by $0.07 and $0.06 for the years ended December 31, 2007 and 2006, respectively.

The fair value of each option award is estimated on the date of grant using the Black-Scholes option-pricing model and expensed over the requisite service period on a straight-line basis. The Company had computed the pro forma disclosures required by SFAS No. 123 for all stock options granted to employees after January 1, 1995, using the Black-Scholes option-pricing model. The assumptions used for the years ended December 31, 2007, 2006, and 2005 are as follows:

	2007	2006	2005
Average risk free interest rate	4.37%	4.58%	4.23%
Expected dividend yield	—	—	—
Expected lives	5.9 years	6 years	6 years
Expected volatility	70%	94%	75%
Weighted average grant date fair value of options granted during the period (per share)	$ 5.81	$ 3.77	$ 3.17

For the years ended December 31, 2007, 2006 and 2005, the weighted average per share grant date fair value and exercise price per share of option grants to employees in relation to market price of the stock on the date of the grant was as follows:

	Exercise Price		
	Equals Market Price	Exceeds Market Price	Is Less than Market Price
2007 Option Grants			
Weighted average grant date fair value of options granted during the period	$ 5.81	$ —	$ —
Weighted average exercise price of options granted during the period	$ 8.86	$ —	$ —
2006 Option Grants			
Weighted average grant date fair value of options granted during the period	$ 3.77	$ —	$ —
Weighted average exercise price of options granted during the period	$ 4.83	$ —	$ —
2005 Option Grants			
Weighted average grant date fair value of options granted during the period	$ 3.06	$ 3.21	$ 4.30
Weighted average exercise price of options granted during the period	$ 4.46	$ 5.76	$ 4.48

The 2005 information in the table above includes certain options that were granted in 2005 with an exercise price less than fair market value and were subsequently cancelled and replaced with options that had an exercise price that was above the market price at the time that they were replaced. Also, as of December 31, 2007, the aggregate intrinsic value of outstanding options and the aggregate intrinsic value of exercisable options amounted to approximately $20,169,000 and $14,134,000, respectively. The intrinsic value of options exercised amounted to $551,000, $12,000, and $22,000 during 2007, 2006 and 2005, respectively. The fair value of options that vested amounted to $1,609,000, $1,144,000 and $1,111,000 during 2007, 2006, and 2005, respectively. As of December 31, 2007, there was $3,161,000 of unrecognized compensation costs related to unvested stock-based compensation arrangements. The cost is expected to be recognized over a weighted average period of 2.6 years.

The Company also awarded non-employee stock options to purchase 125,000 shares of Common stock during 2006. These options had a Black-Scholes fair value of $571,000 at the time of grant based on a risk free interest rate of 4.6%, an expected life of 10 years, and an expected volatility of 95%. The fair value of the nonvested portion of the non-employee options will be remeasured each quarter in accordance with EITF No. 96-18, "*Accounting for Equity Instruments That Are Issued to Other than Employees for Acquiring, or in Conjunction with Selling, Goods or Services*" (EITF No. 96-18). Approximately $519,000 and $238,000 was recorded as an expense for these options in 2007 and 2006, respectively. The Company had no compensation expense related to grants to non-employees in 2005.

There was approximately $27,000 and $24,000 in compensation expense related to the Company's Stock Purchase Plan during 2007 and 2006, respectively. This expense was computed based on the Black-Scholes option pricing model and the following assumptions:

	2007	2006
Average risk free interest rate	4.7%	4.6%
Expected dividend yield	—	—
Expected lives	3 months	3 months
Expected volatility	72%	58%

During 2007, the Company awarded a restricted stock award of 62,500 shares of its common stock to an employee. The stock's $441,000 fair market value on the date of the grant is being amortized over the three-year vesting period. $73,000 of amortization was expensed during 2007. None of the shares subject to this restricted stock grant vested during 2007.

(l) Research and Development Expenses

All research and development expenses, including amounts funded by research collaborations, are expensed as incurred. Research and development expenses are comprised of costs incurred in performing research and development activities, including drug development trials and studies, drug manufacturing, laboratory supplies, external research, payroll including stock-based compensation and overhead. In 2007, Merck & Co. sponsored approximately $1.1 million of the Company's research and development activities. In 2005, Novartis sponsored approximately $1.0 million of the Company's research and development activities. Collaborators sponsored only a nominal portion of the Company's research and development activities in 2006.

(m) Concentration of Credit Risk

Financial instruments that subject the Company to credit risk primarily consist of cash and cash equivalents and short-term investments. The Company's credit risk is managed by investing its cash and cash equivalents and marketable securities in highly rated money market instruments, certificates of deposit, corporate bonds, and debt securities. Due to these factors, no significant additional credit risk is believed by management to be inherent in the Company's assets. As of December 31, 2007, approximately 97% of the Company's cash, cash equivalents, and investments are held at one financial institution.

(n) New Accounting Pronouncements

In July 2007, the Emerging Issues Task Force ("EITF") issued EITF 07-3, "*Accounting for Nonrefundable Advance Payments for Goods or Services to be Used in Future Research and Development Activities*" ("EITF 07-3"). EITF 07-3 clarifies the accounting for nonrefundable advance payments for goods or services that will be used or rendered for research and development activities. EITF 07-3 states that such payments should be capitalized and recognized as an expense as the goods are delivered or the related services are performed. If an entity does not expect the goods to be delivered or the services rendered, the capitalized advance payment should be charged to expense. EITF 07-3 is effective for fiscal years beginning after December 15, 2007. The Company is currently evaluating the effect of EITF 07-3 on its financial statements.

In September 2006, the Financial Accounting Standards Board, or FASB, issued SFAS No. 157, "*Fair Value Measurements*" (SFAS No. 157). SFAS No. 157 defines fair value, establishes a framework for measuring fair value, and expands disclosures about fair value measurement. This statement applies under other accounting pronouncements that require or permit fair value measurements and does not require any new fair value measurement.

SFAS No. 157 is effective for fiscal years beginning after November 15, 2007. In February 2008, the FASB amended SFAS 157 to exclude SFAS No. 13, *Accounting for Leases* (SFAS No. 13), and other accounting pronouncements that address fair value measurements for purposes of lease classification or measurement under SFAS No. 13. However, this scope exception does not apply to assets acquired and liabilities assumed in a business combination that are required to be measured at fair value under SFAS No. 141, *Business Combinations*, (revised 2007), regardless of whether those assets and liabilities are related to leases. In a second February 2008 amendment, the FASB delayed the effective date of Statement 157 for one year, until fiscal years beginning after November 15, 2008, for all nonfinancial assets and nonfinancial liabilities, except those that are recognized or disclosed at fair value in the financial statements on a recurring basis (at least annually). The Company is currently evaluating the effect of SFAS No. 157 as amended on its financial statements.

In February 2007, the FASB issued SFAS No. 159, "*The Fair Value Option for Financial Assets and Financial Liabilities*" (SFAS No. 159) which includes an amendment of SFAS No. 115, "*Accounting for Certain Investments in Debt or Equity Securities*" (SFAS No. 115). SFAS No. 159 permits entities to choose to measure many financial instruments and certain other items at fair value to improve financial reporting by mitigating volatilities in reported earnings caused by measuring related assets and liabilities differently without having to apply complex hedge accounting provisions. SFAS No. 159 is effective for fiscal years beginning after November 15, 2007. The Company is currently evaluating the effect of SFAS No. 159 on its financial statements.

(3) Marketable Securities

The Company's short-term available-for-sale investments at market value consisted of the following at December 31, 2007 and 2006:

	December 31, 2007			
	Cost	Gross Unrealized Losses	Gross Unrealized Gains	Estimated Fair Value
	(In thousands)			
Corporate bonds due in one year or less	$ 1,653	$ —	$ —	$ 1,653
Certificates of deposit due in one year or less	2,801	—	—	2,801
Government bonds due in one year or less	6,693	—	8	6,701
Total	$11,147	$ —	$ 8	$ 11,155

	December 31, 2006			
	Cost	Gross Unrealized Losses	Gross Unrealized Gains	Estimated Fair Value
	(In thousands)			
Certificates of deposit	$ 300	$ —	$ —	$ 300
Corporate bonds due in one year or less	301	—	—	301
Government bonds due in one year or less	1,595	—	—	1,595
Auction securities	11,395	—	—	11,395
Total	$13,591	$ —	$ —	$ 13,591

See Note 2 (g).

(4) Property and Equipment

At December 31, 2007 and 2006, net property and equipment at cost consists of the following:

	December 31,	
	2007	2006
	(In thousands)	
Leasehold improvements	$ 430	$ 444
Laboratory equipment and other	2,585	2,174
Total property and equipment, at cost	3,015	2,618
Less: Accumulated depreciation and amortization	1,051	1,996
Property and equipment, net	$1,964	$ 622

As of December 31, 2007 and 2006, laboratory equipment and other includes approximately $98,000 and $20,000, respectively, of office equipment financed under capital leases with accumulated depreciation of approximately $19,000 and $4,000, respectively.

Depreciation expense, which includes amortization of assets recorded under capital leases, was approximately $364,000, $247,000, and $163,000 in 2007, 2006 and 2005, respectively.

The Company vacated its previous facility in the second quarter of 2007. Consequently as of December 31, 2007, the Company wrote off fully amortized leasehold improvements that had a cost of approximately $445,000. The Company also wrote off unused furniture, and obsolete software, computers and other equipment that had an aggregate cost of approximately $874,000 resulting in a loss of approximately $6,000. During the second quarter of 2007, the Company changed its method of computing depreciation expense to depreciate assets based on the actual periods held rather than the half year convention that was previously used for additions and disposals. This change in method of accounting for depreciation did not have a material impact on depreciation expense or the net loss per share in 2007 compared to the previous method and will not have an impact on future years. In 2006 and 2005, the Company wrote off unused property and equipment that had a gross cost of approximately $185,000 and $109,000, respectively. The write-off of property and equipment resulted in a loss of approximately $2,000 for the year ended December 31, 2005 and a negligible loss for the year ended December 31, 2006.

(5) Accrued Expenses

At December 31, 2007 and 2006, accrued expenses consist of the following:

	December 31,	
	2007	2006
	(In thousands)	
Payroll and related costs	$ 446	$ 71
Clinical trial expenses	598	249
Professional and consulting fees	415	218
Other	286	326
	$1,745	$864

(6) Debt

(a) Notes Payable

In June 2007, the Company executed a promissory note in the aggregate principal amount of $1.3 million (the "Note") in favor of General Electric Capital Corporation ("GE"). The Note was fully secured by specific laboratory,

manufacturing, office and computer equipment and is subject to the terms of a master security agreement dated April 23, 2007 by and between the Company and GE. The Note bears interest at a fixed rate of 11% per annum, and is payable in 48 consecutive monthly installments of principal and accrued interest, with the first installment having been paid out of the proceeds of the borrowing.

The obligations of the Company under the Note and the master security agreement may be accelerated upon the occurrence of an event of default, which includes customary events of default, including without limitation payment defaults, defaults in the performance of covenants and obligations, the inaccuracy of representations or warranties and bankruptcy and insolvency related defaults.

(b) 4% Convertible Notes Payable

In 2005, the Company sold approximately $5,033,000 in aggregate principal amount of 4% convertible subordinated notes due April 30, 2008 (the "4% Notes"). In February 2007, the Company automatically converted these 4% Notes into 706,844 shares of the Company's common stock. In accordance with the terms of the 4% Notes and an agreement dated May 20, 2005, among the Company and the holders of the 4% Notes, the Company was entitled to exercise this right of automatic conversion because the volume-weighted average of the closing prices of the Company's common stock for a period of ten consecutive trading days exceeded $8.90 per share, which represented 125% of the conversion price of the 4% Notes. As of February 20, 2007, the 4% Notes were no longer considered outstanding and interest ceased to accrue. Holders of the 4% Notes were paid cash in lieu of any fractional shares and $61,000 in accrued interest through February 19, 2007.

The Company capitalized its financing costs associated with the sale of the 4% Notes and amortized them as interest expense through February 19, 2007. The unamortized balance of the deferred financing costs of $266,000 was reclassified to additional paid-in-capital in connection with the automatic conversion of the 4% Notes.

(7) Collaboration and License Agreements

(a) Collaboration and License Agreement with Novartis International Pharmaceutical, Ltd.

In May 2005, the Company entered into a research collaboration and option agreement and a separate license, development and commercialization agreement with Novartis to discover, develop and potentially commercialize TLR9 agonists that are identified as potential treatments for asthma and allergies. In addition, beginning on May 31, 2007, if specified conditions are satisfied, Novartis may expand the collaboration to include additional human disease areas, other than oncology and infectious diseases. Under the terms of the agreements, upon execution of the agreements, Novartis paid the Company a $4.0 million upfront license fee; Novartis agreed to fund substantially all research activities during the research collaboration phase; if Novartis elects to exercise its option to develop and commercialize licensed TLR9 agonists in the initial collaboration disease areas, Novartis is potentially obligated to pay the Company up to $132.0 million based on the achievement of clinical development, regulatory approval, and annual net sales milestones; Novartis is potentially obligated to pay the Company additional milestone payments if Novartis elects to expand the collaboration to include additional disease areas and then develops and commercializes licensed TLR9 agonists in the additional disease areas based on the achievement of clinical development and regulatory approval milestones; and Novartis is also obligated to pay the Company royalties on net sales of all products, if any, commercialized by Novartis, its affiliates and sublicensees. Novartis' license rights under the agreements to products that it elects to develop and commercialize are worldwide, exclusive rights.

The Company and Novartis agreed that the term of the research and collaboration phase would be two years commencing in May 2005. The Company initially was recognizing the $4.0 million upfront payment as revenue over the two-year term of the research collaboration. In February 2007, the Company received notice that Novartis had elected to extend the research collaboration by an additional year until May 2008, and for such extension Novartis paid the Company an additional $1.0 million. In connection with this amendment, the Company extended

the time period over which it is amortizing the upfront payment and the $1.0 million extension payment. In 2008, the Company agreed to extend the research collaboration until December 31, 2008.

(b) Collaboration and License Agreement with Merck & Co., Inc.

In December 2006, the Company entered into an exclusive license and research collaboration agreement with Merck & Co. to research, develop, and commercialize vaccine products containing our TLR7, 8 and 9 agonists in the fields of cancer, infectious diseases, and Alzheimer's disease. Under the terms of the agreement, the Company granted Merck & Co. worldwide exclusive rights to a number of the Company's TLR7, 8 and 9 agonists for use in combination with Merck & Co.'s therapeutic and prophylactic vaccines under development in the fields of cancer, infectious diseases, and Alzheimer's disease. The Company also agreed with Merck & Co. to engage in a two-year research collaboration to generate novel agonists targeting TLR7 and TLR8 and incorporating both Merck & Co. and Idera chemistry for use in vaccines in the defined fields, which may be extended by Merck & Co. for two additional one-year periods. Under the terms of the agreement: Merck & Co. paid the Company a $20.0 million upfront license fee; Merck & Co. purchased $10.0 million of the Company's common stock at $5.50 per share; and Merck & Co. agreed to fund the research and development collaboration. Merck & Co. also agreed to pay the Company milestone payments as follows: up to $165.0 million if vaccines containing the Company's TLR9 agonist compounds are successfully developed and marketed in each of the oncology, infectious disease and Alzheimer's disease fields; up to $260.0 million if vaccines containing the Company's TLR9 agonist compounds are successfully developed and marketed for follow-on indications in the oncology field and if vaccines containing the Company's TLR7 or TLR8 agonists are successfully developed and marketed in each of the oncology, infectious disease, and Alzheimer's disease fields; and if Merck & Co. develops and commercializes additional vaccines using the Company's agonists, it would be entitled to receive additional milestone payments. In addition, Merck & Co. agreed to pay the Company royalties on net product sales of vaccines using the Company's TLR agonist technology that are developed and marketed.

The Company is recognizing the $20.0 million upfront payment as revenue over the two-year initial research term and the additional two-year-period over which the research term could be extended. The Company has estimated that this is its period of continuing involvement under the research arrangement.

In December 2006, in connection with the execution of the license and collaboration agreement, the Company entered into a stock purchase agreement with Merck & Co.. Pursuant to the purchase agreement, the Company issued and sold to Merck & Co. 1,818,182 shares of the Company's common stock for a price of $5.50 per share resulting in an aggregate gross proceeds of $10.0 million. Merck & Co. agreed, subject to certain exceptions, that prior to December 8, 2007, it would not sell any of the shares of the Company's common stock acquired by it and that, for the duration of the research and collaboration term, its ability to sell such shares will be subject to specified volume limitations.

(c) Collaboration and License Agreement with Merck KGaA

In December 2007, the Company entered into an exclusive, worldwide license agreement with Merck KGaA to research, develop and commercialize products containing its TLR9 agonists for the treatment of cancer, excluding cancer vaccines, which agreement became effective February 4, 2008. Under the terms of the agreement, Idera granted Merck KGaA worldwide exclusive rights to its lead TLR9 agonists, IMO-2055 and IMO-2125, and to a specified number of novel, follow-on TLR9 agonists to be identified by Merck KGaA and the Company under a research collaboration, for use in the treatment, cure and/or delay of the onset or progression of cancer in humans. Under the terms of the agreement: Merck KGaA paid the Company in February 2008 a $40.0 million upfront license in Euros fee of which $39.7 million was received due to foreign currency exchange rates in effect at that time; Merck KGaA agreed to reimburse future development costs for certain of the Company's on-going IMO-2055 clinical trials, which will continue to be conducted by Idera; Merck KGaA agreed to pay up to EUR 264 million in

development, regulatory approval, and commercial success milestone payments if products containing the Company's TLR9 agonist compounds are successfully developed and marketed for treatment, cure and/or delay of the onset or progression of cancer in humans; and Merck KGaA agreed to pay royalties on net sales of products containing our TLR9 agonists that are marketed.

(d) Other License Agreements

Currently, the Company is a party to five collaboration and license agreements involving the use of its antisense technology and specified indications. These agreements include a license agreement with Isis Pharmaceuticals, Inc. involving intellectual property for antisense chemistry and delivery.

Under the agreement with Isis, the Company granted Isis a license, with the right to sublicense, to its antisense chemistry and delivery patents and patent applications; and the Company retained the right to use these patents and applications in its own drug discovery and development efforts and in collaborations with third parties. Isis paid the Company an initial licensing fee and is required to pay the Company a portion of specified sublicense income it receives from some types of sublicenses of the Company's patents and patent applications. Also under the agreement, the Company licensed from Isis specified antisense patents and patent applications, principally Isis' suite of RNase H patents and patent applications. The Company also paid an initial licensing fee for this license and is obligated to pay Isis a maintenance fee and royalties. The Company has the right to use these patents and patent applications in its drug discovery and development efforts and in some types of third party collaborations. The licenses granted under the Isis agreement terminate upon the last to expire of the patents and patent applications licensed under the agreement. The Company may terminate at any time the sublicense by Isis to it of the patents and patent applications.

The Company is also a party to four other license agreements involving the license of its antisense patents and patent applications for specific gene targets under which the Company typically is entitled to receive license fees, sublicensing income, research payments, payments upon achievement of developmental milestones, and royalties on product sales. These agreements typically expire upon the later of the last to expire of the licensed patents or a specified number of years after the first commercial sale of a licensed product. These agreements may be terminated by either party for a material breach, and the collaborators may terminate these agreements at any time for convenience, with written notice.

The Company is also a party to six royalty-bearing license agreements under which it has acquired rights to antisense related patents, patent applications, and technology. Each of these in-licenses automatically terminates upon the expiration of the last to expire patent included in the license. The Company's principal in-license is with University of Massachusetts Medical Center for chemistry and for certain gene targets. Under all of these in-licenses, the Company is obligated to pay royalties on its net sales of products or processes covered by a valid claim of a licensed patent or patent application. In certain cases, the Company is required to pay a specified percentage of any sublicense income, and all of these licenses impose various commercialization, sublicensing, insurance, and other obligations on the Company, and its failure to comply with these requirements could result in termination of the licenses. Additionally, as part of a 2003 interference resolution for one of the licensed patents, a settlement was made enabling the Company to receive a percentage of the royalty amounts the National Institutes of Health receives for the sale of a product that is covered by such patent.

(8) Stockholders' Equity

(a) Common Stock

Pursuant to the terms of a unit purchase agreement dated as of May 5, 1998, the Company issued and sold a total of 1,199,684 shares of common stock (the Put Shares) at a price of $16.00 per share. Under the terms of the unit purchase agreement, the initial purchasers (the Put Holders) of the Put Shares have the right (the Put Right) to

require the Company to repurchase the Put Shares. The Put Right may not be exercised by any Put Holder unless: 1) the Company liquidates, dissolves or winds up its affairs pursuant to applicable bankruptcy law, whether voluntarily or involuntarily; 2) all of the Company's indebtedness and obligations, including without limitation the indebtedness under the Company's then outstanding notes, has been paid in full; and 3) all rights of the holders of any series or class of capital stock ranking prior and senior to the common stock with respect to liquidation, including without limitation the Series A convertible preferred stock, have been satisfied in full. The Company may terminate the Put Right upon written notice to the Put Holders if the closing sales price of its common stock exceeds $32.00 per share for the twenty consecutive trading days prior to the date of notice of termination. Because the Put Right is not transferable, in the event that a Put Holder has transferred Put Shares since May 5, 1998, the Put Right with respect to those shares has terminated. As a consequence of the Put Right, in the event the Company is liquidated, holders of shares of common stock that do not have Put Rights with respect to such shares may receive smaller distributions per share upon the liquidation than if there were no Put Rights outstanding.

In February 2003, the Company repurchased 301,985 Put Shares. As of December 31, 2007, 102,770 of the Put Shares continued to be held in the name of Put Holders. The Company cannot determine at this time what portion of the Put Rights of the remaining 794,929 Put Shares have terminated.

(b) Warrants

The Company has the following warrants outstanding and exercisable for the purchase of common stock at December 31, 2007:

Expiration Date	Shares	Weighted Exercise Price Per Share
August 28, 2008	894,139	$ 7.80
April 20, 2009	379,187	9.12
August 27, 2009	274,650	5.36
May 24, 2010	70,684	7.12
September 24, 2011	2,839,132	5.39
	4,457,792	
Weighted average exercise price per share		$ 6.22

The warrants that expire in 2010 and 2011 are described in Notes 9(d) and 15.

(c) Stock Options

The 1995 Stock Option Plan provided for the grant of incentive stock options and nonqualified stock options. Options granted under this plan generally vest over three to five years, and expire no later than 10 years from the date of grant. No additional options are being granted under the 1995 Stock Option Plan. As of December 31, 2007, options to purchase a total of 43,843 shares of common stock remained outstanding under the 1995 Stock Option Plan.

Under the 1995 Director Stock Option Plan, a total of 100,000 shares of common stock may be issued upon the exercise of options. Under the terms of the Director Plan options to purchase 469 shares of common stock are granted to each non-employee director on the first day of each calendar quarter and options to purchase 3,125 shares of common stock are granted to non-employee directors upon appointment to the Board. All options vest on the first anniversary of the date of grant. As of December 31, 2007, options to purchase a total of 70,464 shares of common stock remained outstanding under the Director Plan.

The 1997 Stock Incentive Plan provided for the grant of incentive stock options and nonqualified stock options. Options granted under this plan generally vest over three to five years, and expire no later than ten years from the date of grant. No options may be granted under the 1997 Stock Incentive Plan after March 20, 2007. As of December 31, 2007, options to purchase a total of 1,181,219 shares of common stock remained outstanding under the 1997 Stock Incentive Plan.

Under the 2005 Stock Incentive Plan, the Company may grant options to purchase common stock, stock appreciation rights, restricted stock awards and other forms of stock-based compensation. Stock options generally vest over three to four years, and expire no later than 10 years from the date of grant. A total of 2,625,000 shares of common stock may be issued upon the exercise of options granted under the plan. The maximum number of shares of common stock with respect to which awards may be granted to any participant under the plan shall be 125,000 per calendar year. The Compensation Committee of the Board of Directors has the authority to select the employees to whom options are granted and determine the terms of each option, including (i) the number of shares of common stock subject to the option; (ii) when the option becomes exercisable; (iii) the option exercise price, which in the case of incentive stock options must be at least 100% (110% in the case of incentive stock options granted to those holding 10% or more of the voting power of the Company) of the fair market value of the common stock as of the date of grant and (iv) the duration of the option, which in the case of incentive stock options may not exceed 10 years. As of December 31, 2007, options to purchase a total of 1,130,099 shares of common stock remained outstanding under the 2005 Stock Incentive Plan.

As of December 31, 2007, 1,436,006 shares of common stock remain available for grant under the 1995 Director Plan and the 2005 Stock Incentive Plan.

The Company's 1995 Stock Option Plan, the 1995 Employee Stock Purchase Plan, the 1995 Director Stock Option Plan, the 1997 Stock Incentive Plan and the 2005 Stock Incentive Plan have been approved by the Company's stockholders. The Company has also granted options to purchase shares of Common Stock pursuant to agreements with employees that were not approved by stockholders.

IDERA PHARMACEUTICALS, INC.

NOTES TO FINANCIAL STATEMENTS (Continued)
December 31, 2007

Stock option activity for the years ended December 31, 2007, 2006, and 2005 is summarized as follows:

	Number of Shares	Exercise Price Per Share	Weighted Average Price Per Share
Outstanding, December 31, 2004	2,069,987	$4.00 — $16.00	$ 5.98
Granted	623,065	3.84 — 5.76	4.57
Exercised	(15,304)	4.00 — 4.16	4.01
Terminated	(129,568)	3.84 — 8.96	4.63
Outstanding, December 31, 2005	2,548,180	3.84 — 16.00	5.71
Granted	689,000	3.72 — 5.36	4.88
Exercised	(13,878)	4.00 — 4.16	4.00
Terminated	(580,688)	4.00 — 8.96	6.31
Outstanding, December 31, 2006	2,642,614	3.72 — 16.00	5.37
Granted	273,775	5.39 — 12.25	8.86
Exercised	(97,101)	4.00 — 6.24	4.34
Terminated	(69,001)	3.72 — 8.96	4.74
Outstanding, December 31, 2007	2,750,287	$3.74 — $16.00	$ 5.77
Exercisable, December 31, 2005	1,750,078	$4.00 — $16.00	$ 6.14
Exercisable, December 31, 2006	1,584,725	$3.72 — $16.00	$ 5.81
Exercisable, December 31, 2007	1,902,297	$3.74 — $16.00	$ 5.68

	Options Outstanding			Options Exercisable	
Exercise Prices	Number	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price Per Share	Number	Weighted Average Exercise Price Per Share
$3.72 — 4.00	215,448	1.09	$ 4.00	213,948	$ 4.00
4.05 — 4.16	230,757	7.09	4.15	179,844	4.15
4.24 — 4.40	189,704	7.96	4.24	104,344	4.24
4.45	153,906	8.96	4.45	39,533	4.45
4.48	133,750	7.37	4.48	112,917	4.48
4.50	280,841	3.24	4.50	280,841	4.50
4.56 — 5.04	161,690	7.86	4.82	96,538	4.83
5.10	395,000	8.95	5.10	146,668	5.10
5.12 — 6.32	99,815	6.86	5.80	83,045	5.84
6.56 — 6.60	289,375	3.57	6.60	289,375	6.60
6.64 — 8.50	348,346	5.87	7.93	204,215	8.36
8.55 — 16.00	251,655	6.07	10.56	151,029	9.89
	2,750,287	6.09	5.77	1,902,297	5.68

The weighted average remaining contractual life of exercisable options was 5.77 years at December 31, 2007.

(d) Employee Stock Purchase Plan

The 1995 Employee Stock Purchase Plan (the Stock Purchase Plan) was adopted in October 1995 and amended in June 2003. Under the Stock Purchase Plan up to 125,000 shares of common stock may be issued to participating employees of the Company or its subsidiaries. Participation is limited to employees that would not own 5% or more of the total combined voting power or value of the stock of the Company after the grant.

Under the Stock Purchase Plan, on the first day of a designated payroll deduction period, the "Offering Period", the Company will grant to each eligible employee who has elected to participate in the Stock Purchase Plan an option to purchase shares of common stock as follows: the employee may authorize an amount, a whole percentage from 1% to 10% of such employee's regular pay, to be deducted by the Company from such pay during the Offering Period. On the last day of the Offering Period, the employee is deemed to have exercised the option, at the option exercise price, to the extent of accumulated payroll deductions. Under the terms of the Stock Purchase Plan, the option price is an amount equal to 85% of the fair market value per share of the common stock on either the first day or the last day of the Offering Period, whichever is lower. In no event may an employee purchase in any one Offering Period a number of shares that is more than 15% of the employee's annualized base pay divided by 85% of the market value of a share of common stock on the commencement date of the Offering Period. The Compensation Committee may, in its discretion, choose an Offering Period of 12 months or less for each of the Offerings and choose a different Offering Period for each Offering.

Offering periods are three months in duration and commence on March 1, June 1, September 1, and December 1. In 2007, 2006, and 2005, the Company issued 10,364, 18,241 and 18,046 shares of common stock, respectively, under the Stock Purchase Plan.

(e) Repricing

In September 1999, the Company's Board of Directors authorized the repricing of options to purchase 656,478 shares of common stock to $4.00 per share, which represented the market value on the date of the repricing. Prior to 2006, these options were subject to variable plan accounting, as defined in FIN No. 44 which required the Company to remeasure the intrinsic value of the repriced options, through the earlier of the date of exercise, cancellation or expiration, at each reporting date. For the year ended December 31, 2005, the Company recognized approximately $100,000 as stock compensation expense from these repriced options. As explained in Note 2(k), on January 1, 2006, the Company adopted SFAS No. 123R, *"Share-Based Payment*" (SFAS No. 123R), which is a revision of SFAS No. 123, *"Accounting for Stock-Based Compensation"* (SFAS No. 123). SFAS No. 123R supersedes APB Opinion No. 25, *"Accounting for Stock Issued to Employees,"* and amends SFAS No. 95, *"Statement of Cash Flows."* Pursuant to SFAS No. 123R, effective January 1, 2006, the statement of operations no longer includes the effects of marking repriced options to market.

(f) Preferred Stock

The Restated Certificate of Incorporation of the Company permits its Board of Directors to issue up to 5,000,000 shares of preferred stock, par value $0.01 per share, in one or more series, to designate the number of shares constituting such series, and fix by resolution, the powers, privileges, preferences and relative, optional or special rights thereof, including liquidation preferences and dividends, and conversion and redemption rights of each such series. During 1998, the Company designated 1,500,000 shares as Series A convertible preferred stock. As of December 31, 2007 and 2006, there were 655 shares of Series A convertible preferred stock outstanding.

As discussed in Note (14), the Company has designated Series C junior participating preferred stock in connection with its shareholder rights plan. During 2002 the Company designated 100,000 shares of Series C junior participating preferred stock. The Company designated an additional 50,000 shares of Series C junior participating

preferred stock in each of the years 2003 and 2005. There were no shares of Series C junior participating preferred stock issued or outstanding at December 31, 2007 and 2006.

(g) Series A Convertible Preferred Stock

The dividends on the Series A Convertible Preferred Stock are payable semi-annually in arrears at the rate of 1% per annum, at the election of the Company, either in cash or additional duly authorized, fully paid and nonassessable shares of Series A preferred stock. The Company has paid dividends in stock until 2004 when it elected to pay in cash. In the event of liquidation, dissolution or winding up of the Company, after payment of debts and other liabilities of the Company, the holders of the Series A convertible preferred stock then outstanding will be entitled to a distribution of $1 per share out of any assets available to shareholders. The Series A preferred stock is non-voting. All remaining shares of Series A preferred stock rank as to payment upon the occurrence of any liquidation event senior to the common stock. Shares of Series A preferred stock are convertible, in whole or in part, at the option of the holder into fully paid and nonassessable shares of common stock at $34.00 per share, subject to adjustment.

(h) Reverse Stock Split

At the close of business on June 29, 2006, the Company effected a one-for-eight reverse stock split of its issued and outstanding common stock and fixed the number of authorized shares of its common stock at 40,000,000. As a result of the reverse stock split, each share of common stock outstanding at the close of business on June 29, 2006 automatically converted into one-eighth of one share of common stock. All share and per share information herein reflects this reverse stock split.

The reverse stock split reduced the number of outstanding shares of common stock from approximately 133.8 million shares to approximately 16.7 million shares, subject to reduction for fractional shares that were paid for in cash. Additionally, the reverse stock split resulted in proportionate adjustments to (i) the number of shares of common stock issuable upon conversion of the Company's Series A convertible preferred stock, (ii) the number of shares of common stock issued upon conversion of the Company's 4% convertible subordinated notes (iii) the number of shares of common stock issuable upon the exercise of options and warrants outstanding on June 29, 2006 and the exercise price of such options and warrants, and (iv) the number of shares issuable under the Company's stock incentive plans, including the Company's 2005 Stock Incentive Plan, 1997 Stock Incentive Plan, 1995 Director Stock Option Plan, and 1995 Employee Stock Purchase Plan. The reverse stock split did not alter the par value of the common stock, which is $0.001 per share, or modify any voting rights or other terms of the common stock.

(9) Commitments and Contingencies

(a) Lease Commitments

In June 2007, the Company relocated its operations to a newly leased facility. The Company entered into a lease arrangement on October 31, 2006 and the term of the lease commenced on June 1, 2007 and will terminate on May 31, 2014, with one five-year renewal option exercisable by the Company. During 2007, 2006 and 2005, rent expense, including real estate taxes and net of sublease income that ended in January 2007, was $1,221,000, $329,000 and $384,000, respectively. As part of the lease, the Company was required to restrict approximately $619,000 of cash for a security deposit. The lease is classified as an operating lease. Total payments over the seven-

year term of the lease are approximately $9.0 million. Future minimum commitments as of December 31, 2007 under the Company's lease agreement are approximately:

December 31,	Operating Leases (In thousands)
2008	$ 1,178
2009	1,219
2010	1,261
2011	1,306
2012	1,351
2013	1,398
2014	591
	$ 8,304

(b) External Collaborations

The Company is a party to six royalty-bearing license agreements under which it has acquired rights to antisense related patents, patent applications, and technology. Each of these in-licenses automatically terminates upon the expiration of the last to expire patent included in the license. The Company has annual minimum payments due under agreements of $35,000.

(c) Contract Obligations

The Company has an employee agreement, which expires October 2010, with its chief scientific and executive officer. As of December 31, 2007, future minimum commitments under this agreement are approximately $485,000, $485,000 and $388,000 for the years ended December 31, 2008, 2009, and 2010, respectively.

(d) Related-Party Agreements with Affiliates of Stockholders and Directors

In connection with the 2006 purchase commitment described in Note 15, the Company paid one of the Company's directors a commission of $487,500 which represented 5% of the amount available to the Company under the purchase agreement.

In 2005, the Company paid Pillar Investment Limited, which is controlled by a director of the Company, approximately $264,000 in cash and issued warrants to purchase approximately 71,000 shares of common stock at an exercise price of $7.12 per share as fees in connection with Pillar Investment Limited acting as the placement agent for the sale of the 4% convertible subordinated notes in May 2005 (See Note 6(b)). The warrants have a Black-Scholes value of approximately $219,000. Optima Life Sciences Limited, which is controlled by Pillar Investment Ltd., purchased approximately $3,103,000 of the 4% Notes. As discussed in Note (6)(b), the notes were converted to common stock on February 20, 2007.

In addition to the fees described above, the Company also paid other directors consulting fees of approximately $10,000, and $30,000 in 2006 and 2005, respectively. There were no consulting fees paid to directors during 2007.

(10) Income Taxes

Subject to the limitations described below, at December 31, 2007, the Company had cumulative net operating loss carryforwards of approximately $277.7 million and $55.8 million available to reduce federal and state taxable income which expire through 2027 and 2012, respectively. In addition, the Company has cumulative federal and state tax credit carryforwards of $5.7 million and $4.1 million, respectively, available to reduce federal and state

income taxes which expire through 2027 and 2022, respectively. The Tax Reform Act of 1986 contains provisions, which limit the amount of net operating loss and credit carryforwards that companies may utilize in any one year in the event of cumulative changes in ownership over a three-year period in excess of 50%. The Company has completed several financings since the effective date of the Tax Reform Act of 1986, which as of December 31, 2007, have resulted in ownership changes in excess of 50%, as defined under the Act and that may significantly limit the Company's ability to utilize its net operating loss and tax credit carryforwards. The Company has not prepared an analysis to determine the effect of the ownership change limitation on its ability to utilize its net operating loss and tax credit carryforwards. Ownership changes in future periods may place additional limits on the Company's ability to utilize net operating loss and tax credit carryforwards.

As of December 31, 2007 and 2006, the components of the deferred tax assets are approximately as follows:

	2007	2006
	(In thousands)	
Operating loss carryforwards	$ 97,923	$ 92,038
Tax credit carryforwards	8,417	5,026
Other	7,268	8,818
	113,608	105,882
Valuation allowance	(113,608)	(105,882)
	$ —	$ —

As of December 31, 2007, $6.4 million of deferred tax assets were attributable to the recognition of collaboration revenue on a cash basis for tax purposes but not for financial statement purposes. The Company has provided a valuation allowance for its deferred tax asset due to the uncertainty surrounding the ability to realize this asset.

The valuation allowance in the current year has increased by approximately $7.7 million which is attributable to an increase in deferred tax assets associated with net operating loss carryforwards.

For the years ended December 31, 2007, 2006, and 2005, the primary difference between the income tax provision (benefit) recorded by the Company and the amount of the income tax benefit at statutory income tax rates was the increase in the valuation allowance.

The Company adopted the Financial Accounting Standards Board's Interpretation No. 48, "Accounting for Uncertainty in Income Taxes, an interpretation of FASB Statement No. 109" ("FIN 48"), effective January 1, 2007. FIN 48 clarifies the accounting for uncertainty in income taxes recognized in financial statements and requires the impact of a tax position to be recognized in the financial statements if that position is more likely than not of being sustained by the taxing authority. The adoption of FIN 48 did not have any effect on the Company's financial position or results of operations.

The Company has not, as yet, conducted a study of its research and development credit carryforwards. This study may result in an adjustment to the Company's research and development credit carryforwards, however, until a study is completed and any adjustment is known, no amounts are being presented as an uncertain tax position under FIN 48. A full valuation allowance has been provided against the Company's research and development credits and, if an adjustment is required, this adjustment would be offset by an adjustment to the valuation allowance. Thus, there would be no impact to the balance sheet or statement of operations if an adjustment was required.

The Company files income tax returns in the U.S. federal and Massachusetts jurisdictions. The Company is no longer subject to tax examinations for years before 2003, except to the extent that it utilizes net operating losses or tax credit carryforwards that originated before 2003. The Company does not believe there will be any material

changes in its unrecognized tax positions over the next 12 months. The Company has not incurred any interest or penalties. In the event that the Company is assessed interest or penalties at some point in the future, they will be classified in the financial statements as general and administrative expense.

There was $45,000 in alternative minimum tax expense for 2006.

(11) Employee Benefit Plan

The Company has an employee benefit plan under Section 401(k) of the Internal Revenue Code. The plan allows employees to make contributions up to a specified percentage of their compensation. Under the plan, the Company may, but is not obligated to, match a portion of the employees' contributions up to a defined maximum. The Company is currently contributing up to 3% of employee base salary, by matching 50% of the first 6% of annual base salary contributed by each employee. Approximately $118,000, $97,000, and $72,000 of 401(k) benefits were charged to continuing operations during 2007, 2006, and 2005, respectively.

(12) Loss Per Share

Basic and diluted net loss per common share is computed using the weighted average number of shares of common stock outstanding during the period. For the years ended December 31, 2007, 2006 and 2005, diluted net loss per share of common stock is the same as basic net loss per share of common stock, as the effects of the Company's potential common stock equivalents are antidilutive. Total antidilutive securities were approximately 7,210,000, 8,138,000, and 5,267,000 at December 31, 2007, 2006 and 2005, respectively, and consist of stock options, warrants and convertible preferred stock. Antidilutive securities for the year ended December 31, 2006 and 2005 also includes convertible debt instruments on an as-converted basis. Net loss applicable to common stockholders is the same as net loss for years ended December 31, 2007, 2006 and 2005.

(13) Supplemental Disclosure of Cash Flow Information

Supplemental disclosure of cash flow information for the periods presented are as follows:

	Years Ended December 31,		
	2007	2006	2005
	(In thousands)		
Supplemental disclosure of cash flow information:			
Cash paid for interest	$ 149	$176	$ 21
Cash paid for income taxes	$ 45	$ —	$ —
Supplemental disclosure of non cash financing and investing activities:			
Conversion of 4% Convertible Subordinated Notes into Common Stock	$5,033	$ —	$ —
Issuance of stock options and stock for services	$ 44	$ 27	$ 36
Interest paid in kind on 4% Notes	$ —	$ —	$ 92
Issuance of warrants in connection with issuance of 4% Notes	$ —	$ —	$219
Deferred compensation relating to issuance of stock options	$ —	$ —	$ 72
Equipment acquired under capital lease	$ 78	$ —	$ 20

(14) Shareholder Rights Plan

The Company adopted a shareholder rights plan in December 2001. Under the rights plan, one right was distributed as of the close of business on January 7, 2002 on each then outstanding share of the Company's common stock. As a result of the June 2006 reverse stock split discussed in Note 8(h), the number of rights associated with each share of common stock was automatically proportionately adjusted so that (i) eight rights were then associated with each outstanding share of common stock and (ii) so long as the rights are attached to the common stock, eight rights (subject to further adjustment pursuant to the provisions of the rights plan) shall be deemed to be delivered for each share of common stock issued or transferred by the Company in the future. The rights will automatically trade with the underlying common stock and ordinarily will not be exercisable. The rights will only become exercisable, subject to certain exclusions, if a person acquires beneficial ownership of, or commences a tender offer for, fifteen percent or more of the Company's common stock, unless, in either case, the transaction was approved by the Company's board of directors. The Company has amended the rights plan to provide that Baker Brothers Investments and its affiliates will be an exempt person under the rights agreement until such time as it owns (i) more than 5,375,000 shares of the Company's common stock (subject to adjustment and disregarding shares purchased by such stockholder pursuant to a participation right in an agreement between such stockholder and the Company) or (ii) less than 14% of the common stock outstanding once such participation right ends.

If the rights become exercisable, the type and amount of securities receivable upon exercise of the rights would depend on the circumstances at the time of exercise. Initially, each right would entitle the holder to purchase one one-thousandth of a share of the Company's Series C junior participating preferred stock for an exercise price of $13.00. If a person (other than an exempt person) acquires fifteen percent or more of the Company's common stock in a transaction that was not approved by the Company's board of directors, then each right, other than those owned by the acquiring person, would instead entitle the holder to purchase $26.00 worth of the Company's common stock for the $13.00 exercise price. If the Company is involved in a merger or other transaction with another company in which the Company is not the surviving corporation, or transfers more than 50% of its assets to another company, in a transaction that was not approved by the Company's board of directors, then each right, other than those owned by the acquiring person, would instead entitle the holder to purchase $26.00 worth of the acquiring company's common stock for the $13.00 exercise price.

The Company's board of directors may redeem the rights for $0.001 per right at any time until ten business days after a person acquires fifteen percent or more of the Company's outstanding common stock. Unless the rights are redeemed or exchanged earlier, they will expire on December 10, 2011.

(15) Equity Offerings

In March 2006, the Company raised approximately $9.8 million in gross proceeds from a private placement to institutional investors. In the private placement, the Company sold for a purchase price of $3.52 per share approximately 2,770,000 shares of common stock and warrants to purchase approximately 2,077,000 shares of common stock. The warrants to purchase common stock have an exercise price of $5.20 per share, are fully exercisable, and will expire if not exercised on or prior to September 24, 2011. The warrants may be exercised by cash payment only. After March 24, 2010, the Company may redeem the warrants for $0.08 per warrant share following notice to the warrant holders if the volume weighted average of the closing sales price of the common stock exceeds 300% of the warrant exercise price for the 15-day period preceding the notice. The Company may exercise its right to redeem the warrants by providing 20 days' prior written notice to the holders of the warrants. The net proceeds to the Company from the offering, excluding the proceeds of any future exercise of the warrants, were approximately $8.9 million. The agent fees and other costs directly related to securing the commitment amounted to approximately $0.9 million. The Company has filed a registration statement covering the resale of the common stock and the common stock issuable upon exercise of the warrants, which has been declared effective.

In March 2006, the Company secured a purchase commitment from an investor to purchase from the Company up to $9.8 million of the Company's common stock during the period from June 24, 2006 through December 31, 2006 in up to three drawdowns made by the Company at the Company's discretion. Prior to December 31, 2006, the Company drew down the full $9.8 million through the sale of approximately 1,904,000 shares of common stock at a price of $5.12 per share resulting in net proceeds to the Company, excluding the proceeds of any future exercise of the warrants, described below, of approximately $8.9 million. The agent fees and other costs directly related to securing the commitment amounted to approximately $0.9 million. As part of the arrangement, the Company issued warrants to the investor to purchase approximately 762,000 shares of common stock at an exercise price of $5.92 per share. The warrants are exercisable by cash payment only. The warrants are exercisable at any time on or prior to September 24, 2011. On or after March 24, 2010, Idera may redeem the warrants for $0.08 per warrant share following notice to the warrant holders if the closing sales price of the common stock exceeds 250% of the warrant exercise price for 15 consecutive trading days prior to the notice. The Company may exercise its right to redeem the warrants by providing at least 30 days' prior written notice to the holders of the warrants.

(16) Subsequent Events

In February 2008, following clearance of the Company's licensing and collaboration agreement with Merck KGaA under the Hart-Scott-Rodino Antitrust Improvements Act, Merck KGaA paid the Company the $40.0 million upfront license fee in Euros provided for by the agreement. Due to foreign currency exchange rates, the Company received $39.7 million (see Note 7(c)).

In March 2008, the Company paid approximately $1,189,000 to General Electric Capital Corporation as payment in full of all obligations outstanding under the Company's Note with GE. The payment represented approximately $1,121,000 of principal amount outstanding plus accrued interest through the date of payment of approximately $12,000 and a prepayment premium of approximately $56,000 (see Note 6(a)). The Note has been cancelled.

In January 2008, the Company sent notice to holders of the Company's warrants to purchase common stock that were issued in August 2004 with an expiration date of August 27, 2009 (the "August 2004 Warrants") that under the terms of the warrant agreement, it intends to redeem on March 31, 2008 any August 2004 Warrants not exercised as of that date for a redemption price of $0.08 per share of common stock underlying the August 2004 Warrants. The August 2004 Warrants can be exercised by cash payment only and have an exercise price of $5.36 per share of common stock. Following such notice and through February 29, 2008, the Company had received approximately $580,000 in proceeds from the exercise of August 2004 Warrants to purchase 108,129 shares of common stock. As of February 29, 2008, August 2004 Warrants to purchase 166,521 shares of common stock remained outstanding.

Table of Contents

Exhibit Index

Exhibit Number	Description	Filed with this Form 10-K	Incorporated by Reference		
			Form or Schedule	Filing Date with SEC	SEC File Number
3.1	Restated Certificate of Incorporation of Idera Pharmaceuticals, Inc., as amended.		10-Q	August 14, 2006	001-31918
3.2	Amended and Restated Bylaws of Idera Pharmaceuticals, Inc.		S-1	November 6, 1995	33-99024
3.3	Certificate of Ownership and Merger.		8-K	September 15, 2005	001-31918
4.1	Specimen Certificate for shares of Common Stock, $.001 par value, of Idera Pharmaceuticals, Inc.		S-1	December 8, 1995	33-99024
4.2	Rights Agreement dated December 10, 2001 by and between Idera Pharmaceuticals, Inc. and Mellon Investor Services LLC, as rights agent.		S-2	October 10, 2003	333-109630
4.3	Amendment No. 1 to Rights Agreement dated as of August 27, 2003 between the Company and Mellon Investor Services LLC, as rights agent.		8-K	August 29, 2003	000-27352
4.4	Amendment No. 2 to Rights Agreement dated as of March 24, 2006 between the Company and Mellon Investor Services LLC, as rights agent.		8-K	March 29, 2006	001-31918
4.5	Amendment No. 3 to Rights Agreement dated January 16, 2007 between the Company and Mellon Investor Services, LLC, as rights agent		8-K	January 17, 2007	001-31918
10.1†	License Agreement dated February 21, 1990 and restated as of September 8, 1993 between Idera Pharmaceuticals, Inc. and University of Massachusetts Medical Center.		S-1	November 6, 1995	33-99024
10.2††	2005 Stock Incentive Plan, as amended		10-Q	August 14, 2006	001-31918
10.3††	1995 Stock Option Plan.		S-1	November 6, 1995	33-99024
10.4††	1995 Director Stock Option Plan.		S-1	November 6, 1995	33-99024
10.5††	1995 Employee Stock Purchase Plan.		S-1	November 6, 1995	33-99024
10.6††	Amendment No. 1 to 1995 Employee Stock Purchase Plan.		10-Q	August 14, 2006	001-31918
10.7††	Employment Agreement dated October 19, 2005 between Idera Pharmaceuticals, Inc. and Dr. Sudhir Agrawal.		10-Q	November 9, 2005	001-31918
10.8††	Non-employee Director Compensation Program Effective January 1, 2008	X			
10.9†	Amendment No. 1 to License Agreement, dated as of February 21, 1990 and restated as of September 8, 1993, by and between University of Massachusetts Medical Center and Idera Pharmaceuticals, Inc., dated as of November 26, 1996.		10-Q	August 14, 1997	000-27352
10.10††	Amended and Restated 1997 Stock Incentive Plan.		10-Q	May 15, 2001	000-27352

Exhibit Number	Description	Filed with this Form 10-K	Incorporated by Reference		
			Form or Schedule	Filing Date with SEC	SEC File Number
10.11†	Collaboration and License Agreement by and between Isis Pharmaceuticals, Inc., and Idera Pharmaceuticals, Inc., dated May 24, 2001.		10-Q	August 20, 2001	000-27352
10.12	Amendment No. 1 to the Collaboration and License Agreement, dated as of May 24, 2001 by and between Isis Pharmaceuticals, Inc. and Idera Pharmaceuticals, Inc., dated as of August 14, 2002.		10-K	March 31, 2003	000-27352
10.13	Master Agreement relating to the Cross License of Certain Intellectual Property and Collaboration by and between Isis Pharmaceuticals, Inc. and Idera Pharmaceuticals, Inc., dated May 24, 2001.		10-Q	August 20, 2001	000-27352
10.14	Unit Purchase Agreement by and among Idera Pharmaceuticals, Inc. and certain persons and entities listed therein, dated April 1, 1998.		10-K	April 1, 2002	000-27352
10.15††	Letter Agreement dated May 17, 2007, Robert G. Andersen		10-Q	August 1, 2007	001-31918
10.16††	Executive Stock Option Agreement for 1,260,000 Options effective as of July 25, 2001 between Idera Pharmaceuticals, Inc. and Dr. Sudhir Agrawal.		10-Q	October 24, 2002	000-27352
10.17††	Executive Stock Option Agreement for 550,000 Options effective as of July 25, 2001 between Idera Pharmaceuticals, Inc. and Dr. Sudhir Agrawal.		10-Q	October 24, 2002	000-27352
10.18††	Executive Stock Option Agreement for 500,000 Options effective as of July 25, 2001 between Idera Pharmaceuticals, Inc. and Dr. Sudhir Agrawal.		10-Q	October 24, 2002	000-27352
10.19	Registration Rights Agreement, dated as of August 28, 2003 by and among Idera Pharmaceuticals, Inc., the Purchasers and the Agents.		S-2	October 10, 2003	333-109630
10.20	Form of Common Stock Purchase Warrant issued to purchasers of units in a private placement on August 28, 2003 and August 29, 2003.		S-2	October 10, 2003	333-109630
10.21	Form of Common Stock Purchase Warrant issued to selected dealers and placement agents on August 28, 2003 in connection with a private placement.		S-2	October 10, 2003	333-109630
10.22	Registration Rights Agreement, dated August 27, 2004 by and among Idera Pharmaceuticals, Inc., Pillar Investment Limited and Purchasers.		10-Q	November 12, 2004	001-31918

Exhibit Number	Description	Filed with this Form 10-K	Incorporated by Reference		
			Form or Schedule	Filing Date with SEC	SEC File Number
10.23	Form of Warrants issued to investors and the placement agent in connection with Idera Pharmaceuticals's August 27, 2004 financing.		10-Q	November 12, 2004	001-31918
10.24	Non-Employee Director Nonstatutory Stock Option Agreement Granted under 1997 Stock Incentive Plan.		10-K	March 25, 2005	001-31918
10.25	Form of Incentive Stock Option Agreement Granted Under the 2005 Stock Incentive Plan.		8-K	June 21, 2005	001-31918
10.26	Form of Nonstatutory Stock Option Agreement Granted Under the 2005 Stock Incentive Plan.		8-K	June 21, 2005	001-31918
10.27	Form of Restricted Stock Agreement Under the 2005 Stock Incentive Plan		10-Q	August 1, 2007	001-31918
10.28†	Research Collaboration and Option Agreement by and between Idera Pharmaceuticals, Inc. and Novartis International Pharmaceutical Ltd.		10-Q	August 9, 2005	001-31918
10.29†	License, Development and Commercialization Agreement by and between Idera Pharmaceuticals, Inc and Novartis International Pharmaceutical Ltd.		10-Q	August 9, 2005	001-31918
10.30	Engagement letter, dated May 20, 2005, by and among Idera Pharmaceuticals, Inc. and Pillar Investment Limited.		10-Q	August 9, 2005	001-31918
10.31††	Consulting Agreement dated as of January 1, 2008 between Idera Pharmaceuticals, Inc. and Karr Pharma Consulting, LLC.	X			
10.32	Registration Rights Agreement dated as of May 20, 2005 by and among Idera Pharmaceuticals, Inc., Purchasers and Pillar Investment Limited.		10-Q	August 9, 2005	001-31918
10.33	Common Stock Purchase Warrant issued to Pillar Investment Limited in connection with the May 20, 2005 Financing.		10-Q	August 9, 2005	001-31918
10.34	Common Stock Purchase Agreement, dated March 24, 2006, by and among the Company and the Investors named therein.		8-K	March 29, 2006	001-31918
10.35	Registration Rights Agreement, dated March 24, 2006, by and among the Company and the Investors named therein.		8-K	March 29, 2006	001-31918
10.36	Amendment No. 1 to the Common Stock Purchase Agreement, dated March 24, 2006, by and among the Company and the Investors named therein.		10-Q	August 14, 2006	001-31918

Exhibit Number	Description	Filed with this Form 10-K	Incorporated by Reference		
			Form or Schedule	Filing Date with SEC	SEC File Number
10.37	Form of Warrant issued to Investors in the Company's March 24, 2006 Private Financing.		8-K	March 29, 2006	001-31918
10.38	Common Stock Purchase Agreement, dated March 24, 2006, by and between the Company and Biotech Shares Ltd.		8-K	March 29, 2006	001-31918
10.39	Amendment No. 1 to the Common Stock Purchase Agreement, dated March 24, 2006, by and among the Company and Biotech Shares Ltd.		10-Q	November 13, 2006	001-31918
10.40	Engagement Letter, dated March 24, 2006, between the Company and Youssef El Zein.		8-K	March 29, 2006	001-31918
10.41	Registration Rights Agreement, dated March 24, 2006, by and among the Company, Biotech Shares Ltd. and Youssef El Zein.		8-K	March 29, 2006	001-31918
10.42	Warrant issued to Biotech Shares Ltd. on March 24, 2006.		8-K	March 29, 2006	001-31918
10.43†	Exclusive License and Research Collaboration Agreement by and between Merck & Co., Inc. and Idera Pharmaceuticals, Inc., dated December 8, 2006.		8-K	March 6, 2007	001-31918
10.44	Amendment No. 1 to the Registration Rights Agreement dated March 24, 2006, by and among the Company and Biotech Shares Ltd.		10-Q	August 14, 2006	001-31918
10.45*	License Agreement by and between Merck KGaA and Idera Pharmaceuticals, Inc., dated December 18, 2007.	X			
10.46	Promissory Note dated June 12, 2007 made by Idera Pharmaceuticals, Inc. in favor of General Electric Capital Corporation.		10-Q	August 1, 2007	001-31918
10.47	Master Security Agreement dated June 12, 2007 by and between Idera Pharmaceuticals, Inc. and General Electric Capital Corporation.		10-Q	August 1, 2007	001-31918
23.1	Consent of Independent Registered Public Accounting Firm.	X			
31.1	Certification of Chief Executive Officer pursuant to Exchange Act Rules 13a-14 and 15d-14, as adopted pursuant to Section 302 of Sarbanes-Oxley Act of 2002.	X			
31.2	Certification of Chief Financial Officer pursuant to Exchange Act Rules 13a-14 and 15d-14, as adopted pursuant to Section 302 of Sarbanes-Oxley Act of 2002.	X			

Exhibit Number	Description	Filed with this Form 10-K	Incorporated by Reference		
			Form or Schedule	Filing Date with SEC	SEC File Number
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.	X			
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	X			

* Confidential treatment requested as to certain portions, which portions are omitted and filed separately with the Commission.

† Confidential treatment granted as to certain portions, which portions are omitted and filed separately with the Commission.

†† Management contract or compensatory plan or arrangement required to be filed as an Exhibit to the Annual Report on Form 10-K.

Exhibit 10.8

Non-employee Director Compensation Program
Effective January 1, 2008

Cash Fees

	Member Annual Fee	Chairman Annual Fee
Board of Directors	$ 35,000	$ 60,000
Audit Committee	$ 7,000	$ 15,000
Compensation Committee	$ 5,000	$ 10,000
Nominating and Corporate Governance Committee	$ 3,500	$ 7,500

Equity Fees

Each new non-employee director will receive an option to purchase 16,000 shares of the Company's Common Stock at the fair market value on the date of grant, and each ongoing director will receive an annual grant following the annual meeting to purchase 10,000 shares of the Company's Common Stock at the fair market value of the Common Stock on the date of grant. All options under the director compensation program will vest quarterly over three years.

Effective, January 2, 2008, all currently serving non-employee directors will receive an option to purchase 16,000 shares of the Company's common stock at an exercise price equal to the closing price of the Company's Common Stock on the NASDAQ Global Market on January 2, 2008. All options will vest quarterly over three years.

Exhibit 10.31

CONSULTING AGREEMENT

THIS CONSULTING AGREEMENT (the "Agreement"), made this 1st day of January, 2008 ("Effective Date") is entered into by Idera Pharmaceuticals, Inc., a Delaware corporation with its principal place of business at 167 Sidney Street, Cambridge, MA 02139 (the "Company"), and Karr Pharma Consulting, LLC, having a place of business located at 30 Ox Bow Lane, Essex, Connecticut 06426 (the "Consultant"). Company and Consultant may be referred to herein individually as a "Party" and collectively as the "Parties."

INTRODUCTION

The Company desires to retain the services of the Consultant and the Consultant desires to perform certain Services, as defined below, for the Company. In consideration of the mutual covenants and promises contained herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the Parties, the Parties agree as follows:

1. Services. The Consultant agrees to perform such consulting, advisory and related services to and for the Company as may be reasonably requested from time to time by the Company ("Service"). Such Services shall be performed at such location, on such days, and at such times as may be reasonably agreed by the Company and the Consultant. Such Services, if any, shall be performed on an as needed basis.

2. Term. This Agreement shall commence on the Effective Date and shall continue until December 31, 2008 (such period, as it may be extended, being referred to as the "Consultation Period"), unless sooner terminated in accordance with the provisions of Section 4.

3. Compensation.

3.1 Consulting Fees. The Consultant shall be entitled to $375 per hour, not to exceed $3,000 per day, of Service actually performed by the Consultant hereunder. The Consultant shall submit to the Company monthly statements, in a form satisfactory to the Company, detailing Services performed for the Company in the previous month. The Company shall pay to the Consultant consulting fees with respect to all Services actually performed and invoiced within 30 days after Company's receipt of each monthly invoice.

3.2 Reimbursement of Expenses. The Company shall reimburse the Consultant for all reasonable and necessary expenses incurred or paid by the Consultant in connection with, or related to, the performance of his Services under this Agreement. The Consultant shall submit to the Company itemized monthly statements, in a form satisfactory to the Company, of such expenses incurred in the previous month. The Company shall pay to the Consultant amounts shown on each such statement within 30 days after Company's receipt thereof. Notwithstanding the foregoing, the Consultant shall not incur total expenses in excess of $ 1,000 per month without the prior written approval of the Company.

3.3 Benefits. The Consultant shall not be entitled to any benefits, coverages or privileges made available to employees of the Company, including, without limitation, social security, unemployment, medical or pension payments.

4. Termination. Each of the Company and the Consultant may terminate the Consultation Period upon 30 days' prior written notice to the other Party. In the event of such termination, the Consultant shall be entitled to payment for Services performed and expenses paid or incurred prior to the effective date of termination, subject to the limitation on reimbursement of expenses set forth in Section 3.2. Notwithstanding the foregoing, the Company may terminate the Consultation Period, effective immediately upon receipt of written notice, if the Consultant breaches or threatens to breach any provision of this Agreement or Section 7, 8 or 9 of the Employment Agreement (as defined below).

5. Cooperation. The Consultant shall use his best efforts in the performance of his obligations under this Agreement. The Company shall provide such access to its information and property as may be reasonably required in order to permit the Consultant to perform his obligations hereunder. The Consultant shall cooperate with the Company's personnel, shall not interfere with the conduct of the Company's business and shall observe all rules, regulations and security requirements of the Company concerning the safety of persons and property.

6. Employment Agreements.

(a) The Company and the Consultant acknowledge and agree that this Consulting Agreement shall take effect immediately following the effectiveness of the Consultant's resignation as an officer and employee of the Company and the termination of the Employment Period (as defined in the Employment Agreement dated as of December 5, 2005 between the Company and the Consultant (the "Employment Agreement")).

(b) The Consultant hereby agrees that during the Consulting Period he shall continue to be bound by and subject to the provisions of Sections 7, 8 and 9 of the Employment Agreement, as if he continued to be an employee of the Company during the Consultation Period and that references in such Sections to the termination or cessation of employment shall be deemed to mean the termination or cessation of the Consultation Period hereunder. For example, as a result of this Section 6(b), the Consultant shall be subject to and bound by the non-competition and non-solicitation obligations set forth in Section 8 of the Employment Agreement during the Consultation Period and for a period of one year after the termination or cessation of the Consultation Period for any reason.

7. Independent Contractor Status. The Consultant shall perform all Services under this Agreement as an "independent contractor" and not as an employee or agent of the Company. The Consultant is not authorized to assume or create any obligation or responsibility, express or implied, on behalf of, or in the name of, the Company or to bind the Company in any manner.

8. Notices. All notices required or permitted under this Agreement shall be in writing and shall be deemed effective upon personal delivery or upon deposit in the United States Post Office, by registered or certified mail, postage prepaid, addressed to the other Party at the address shown above, or at such other address or addresses as either Party shall designate to the other in accordance with this Section 8.

9. Pronouns. Whenever the context may require, any pronouns used in this Agreement shall include the corresponding masculine, feminine or neuter forms, and the singular forms of nouns and pronouns shall include the plural, and vice versa.

10. Entire Agreement. This Agreement constitutes the entire agreement between the Parties and supersedes all prior agreements and understandings, whether written or oral, relating to the subject matter of this Agreement.

11. Amendment. This Agreement may be amended or modified only by a written instrument executed by both the Company and the Consultant.

12. Governing Law. This Agreement shall be construed, interpreted and enforced in accordance with the laws of the Commonwealth of Massachusetts.

13. Successors and Assigns. This Agreement shall be binding upon, and inure to the benefit of, both Parties and their respective successors and assigns, including any corporation with which, or into which, the Company may be merged or which may succeed to its assets or business, provided, however, that the obligations of the Consultant are personal and shall not be assigned by him.

14. Miscellaneous.

14.1 No delay or omission by the Company in exercising any right under this Agreement shall operate as a waiver of that or any other right. A waiver or consent given by the Company on any one occasion shall be effective only in that instance and shall not be construed as a bar or waiver of any right on any other occasion.

14.2 The captions of the sections of this Agreement are for convenience of reference only and in no way define, limit or affect the scope or substance of any section of this Agreement.

14.3 In the event that any provision of this Agreement shall be invalid, illegal or otherwise unenforceable, the validity, legality and enforceability of the remaining provisions shall in no way be affected or impaired thereby.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the Effective Date.

IDERA PHARMACEUTICALS, INC.

By: /s/ Lou Arcudi
Lou Arcudi
CFO
Date: 1-2-08

KARR PHARMA CONSULTING, LLC

By: /s/ Robert W. Karr
Robert W. Karr, M.D.

Date: 1-2-08

Exhibit 10.45

Confidential Materials omitted and filed separately with the
Securities and Exchange Commission. Asterisks denote omissions.

LICENSE AGREEMENT

Dated December 18, 2007

By and Between

Idera Pharmaceuticals, Inc.

And

Merck KGaA

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LICENSE AGREEMENT

THIS LICENSE AGREEMENT (the "**Agreement**") is dated as of December 18, 2007 (the **"Signing Date"**) by and between Idera Pharmaceuticals, Inc., a corporation organized under the laws of Delaware having its place of business at 167 Sidney Street, Cambridge, MA 02139, United States ("**Licensor**"), and Merck KGaA, a general partnership limited by shares organized under German law having a place of business at Frankfurter Strasse 250, 64293 Darmstadt, Germany ("**Merck**"). Licensor and Merck may be referred to herein as a "Party" or, collectively, as "Parties."

RECITALS:

Whereas, Licensor is a pharmaceutical company engaged in the discovery and development of modulators of toll-like receptors ("**TLRs**"), including the Compounds (as hereinafter defined);

Whereas, Merck, through its division Merck Serono for innovative pharmaceuticals, and its Affiliates (as hereinafter defined) are engaged in the research, development and commercialization of pharmaceuticals products, and Merck is interested in developing and commercializing products comprising the Compounds; and

Whereas, Merck desires to license from Licensor and Licensor wishes to license to Merck, on an exclusive, worldwide basis, the right to develop and commercialize products comprising the Compounds for certain Indications (as hereinafter defined) and therapeutic areas.

Now, **Therefore**, in consideration of the various promises and undertakings set forth herein, the Parties agree as follows:

Article 1

DEFINITIONS

Unless otherwise specifically provided herein, the following terms shall have the following meanings:

1.1 "**Adverse Event**" means any serious untoward medical occurrence in a patient or subject who is administered a Licensed Product, but only if and to the extent that such serious untoward medical occurrence is required under applicable Laws to be reported to the FDA or any other Regulatory Authority.

1.2 "**Affiliate**" shall mean, in relation to any Party: (a) any company or other entity in which more than fifty percent (50%) of the voting rights, shares or other equity interest are owned and controlled directly or indirectly by that Party; and/or (b) any individual, company or other entity which owns and controls directly or indirectly more than fifty percent (50%) of the voting rights, shares or other equity interest of that Party; and/or (c) any individual, company or other entity which has the power to direct or cause direction of the management and policies of that Party (whether through ownership of securities or partnership or other ownership interests, by contract or otherwise); and/or (d) any company or other entity in which more than fifty

percent (50%) of the voting rights, shares or other equity interest are owned and controlled directly or indirectly by an individual or entity responding to the definition of (c) above.

1.3 "**Calendar Quarter**" means each three (3) month period commencing January 1, April 1, July 1 or October 1.

1.4 "**Calendar Year**" means the period beginning on the 1st of January and ending on the 31st of December of the same year.

1.5 "**Clinical Trial**" means a clinical trial in human subjects that has been approved by a Regulatory Authority and is designed to measure the safety and/or efficacy of a Licensed Product. Clinical Trials shall include Phase I Trials, Phase I/II Trials, Phase II Trials and Phase III Trials.

1.6 "**Change of Control**" means (a) a transaction or series of related transactions that results in the sale or other disposition of all or substantially all of a Party's assets; or (b) a merger or consolidation in which a Party is not the surviving corporation or in which, if a Party is the surviving corporation, the shareholders of such Party immediately prior to the consummation of such merger or consolidation do not, immediately after consummation of such merger or consolidation, own stock or other securities of the Party that possess a majority of the voting power of all of the Party's outstanding stock and other securities and the power to elect a majority of the members of the Party's board of directors; or (c) a transaction or series of related transactions (which may include without limitation a tender offer for a Party's stock or the issuance, sale or exchange of stock of a Party) if the shareholders of such Party immediately prior to the initial such transaction do not, immediately after consummation of such transaction or any of such related transactions, own stock or other securities of the Party that possess a majority of the voting power of all of the Party's outstanding stock and other securities and the power to elect a majority of the members of the Party's board of directors.

1.7 "**Combination Product**" means a Licensed Product containing one or more Compounds and/or Follow-On Compounds together, in one package or formulated into one product, with one or more other active ingredients.

1.8 "**Commercialization**" or "**Commercialize**" means any and all activities undertaken after Regulatory Approval of an NDA for a particular Licensed Product and that relate to the marketing, promoting, distributing, importing for sale, offering for sale, and selling of the Licensed Product, and interacting with Regulatory Authorities regarding the foregoing. Commercialization shall also include Phase IV Studies.

1.9 "**Commercially Reasonable Efforts**" means, (a) with respect to the efforts to be expended by any Party with respect to any objective, such reasonable, diligent, and good faith efforts as such Party would normally use to accomplish a similar objective under similar circumstances, and (b) with respect to any objective relating to Development or Commercialization of a Licensed Product by Merck, the application by Merck of diligent efforts and resources to fulfill the obligation in issue where it is commercially viable to do so, consistent with the usual practice followed by Merck for a product at a similar stage in its product life as the Licensed Product and having profit potential and strategic value comparable to that of the

Licensed Product, taking into account, without limitation, scientific, development, technical, commercial and regulatory factors, target product profiles, product labeling, past performance, the regulatory environment and competitive market conditions in the therapeutic area, safety and efficacy of a subject product, the strength of its proprietary position and such other factors as Merck may reasonably consider, all based on conditions then prevailing. Commercially Reasonable Efforts will not mean that Merck commits that it will actually accomplish the applicable task.

1.10 "**Competing Product**" means any TLR-9 agonist compound developed by Licensor for use in the Field that (a) stimulates TLR-9, or (b) stimulates the TLR-9-mediated immune response through direct interaction with proteins that are primarily involved in the TLR-9 intracellular signaling pathway.

1.11 "**Compound(s)**" means (a) the TLR-9 agonist known as IMO-2055, (b) the TLR-9 agonist known as IMO-2125, (c) any [**] (all described together in this clause (c) hereinafter **"Compound Improvements"**), (d) any [**]. The molecular structures of IMO-2055 and IMO-2125 are set forth on Schedule 1.11.

1.12 "**Compulsory License**" means a compulsory license under Licensor Technology obtained by a Third Party through the order, decree, or grant of a competent Governmental Body or court, authorizing such Third Party to develop, make, have made, use, sell, offer to sell or import a Licensed Product in any country in the Field in the Territory.

1.13 "**Confidential Information**" of a Party means such Party's confidential information relating to its business, operations and products, including but not limited to, any technical information, Know-How, trade secrets, or inventions (whether patentable or not) that it discloses to the other Party under this Agreement.

1.14 "**Controlled**" means, with respect to (a) Patent Rights, (b) Know-How or (c) biological, chemical or physical material, that the Party or one of its Owned Affiliates owns or has a license or sublicense to such right, item, or material (or in the case of material, has the right to physical possession of such material) and has the ability to grant a license or sublicense to, or assign its right, title and interest in and to, such right, item or material as provided for in this Agreement without violating the terms of any agreement or other arrangement with any Third Party. For purposes of this Agreement, inventions or discoveries (whether or not patentable) made jointly by employees or others acting on behalf of Licensor together with employees or others acting on behalf of Merck shall be deemed to be Controlled by both Parties. As used in this Section 1.14 "**Owned Affiliate**" means any Affiliate as to which (i) the relevant Party is the beneficial owner of at least fifty percent (50%) of the voting share capital, and/or (ii) the relevant Party has the ability to control the policies of (or to control the hiring and firing of the management who determine the policies of) through a voting agreement or other contract.

1.15 "**Cover**", "**Covering**" or "**Covered**" means, with respect to a Licensed Product, that the making or having made, using, selling, offering for sale or importing of such Licensed Product would, but for ownership of, or a license granted to, the relevant Patent Rights, infringe a Valid Claim of the relevant Patent Rights in the country in which the activity occurs.

1.16 "**Development**" or "**Develop**" means, with respect to a Licensed Product, the performance of all pre-clinical and clinical development (including, without limitation, toxicology, pharmacology, test method development and stability testing, process development, formulation development, quality control development, statistical analysis, Clinical Trials (excluding post-Regulatory Approval of an NDA Clinical Trials), manufacturing and regulatory activities that are required to obtain Regulatory Approval of such Licensed Product in the Field in the Territory under this Agreement.

1.17 "**Development Costs**" means those Out-Of-Pocket Expenses incurred by Licensor after the Effective Date that are directly and solely attributable to the achievement of work or activities performed by or on behalf of Licensor after the Effective Date toward the completion of the On-Going Trials.

1.18 **"Effective Date"** means, (a) if HSR Filings are not required under the HSR Act with respect to the transactions contemplated by this Agreement, the Signing Date or (b) if HSR Filings are required under the HSR Act with respect to the transactions contemplated by this Agreement, the HSR Clearance Date.

1.19 "**Euros**" or "**€**" means the lawful currency of the Member States of the European Union that adopt the single currency in accordance with the relevant European Union Treaties.

1.20 "**EMEA**" means the European Medicines Agency or any successor agency.

1.21 "**FDA**" means the United States Food and Drug Administration, or a successor federal agency thereto.

1.22 "**Field**" means prevention, treatment, cure and/or delay of the onset or progression of cancer in humans. The Field shall specifically include the use of Licensed Product as a monotherapy product or as a Combination Product, whereby the latter shall include, but not be limited to, the combination of the Licensed Product with therapeutic monoclonal antibodies, including those labeled or tagged, other therapeutic recombinant proteins, other biologically active nucleic acids or derivatives thereof (excluding DNA vaccines), small molecule chemical entities and irradiation. The Field excludes the use of any Compound, Follow-On Compound and/or Licensed Product as an adjuvant contained in or administered in conjunction with any prophylactic and/or therapeutic vaccine for the prevention and/or treatment of any type of cancer, including (for purposes of clarity) the prevention and/or treatment of viruses that are considered precursors to cancer (a **"Cancer Vaccine"**); provided that [**].

1.23 "**First Commercial Sale**" means, with respect to a Licensed Product in any country, the first commercial transfer or disposition for value of such Licensed Product giving rise to Net Sales in such country to a Third Party by Merck, an Affiliate of Merck or a Sublicensee.

1.24 "**Follow-On Compound(s)**" means (a) any of the [**] TLR-9 agonists Covered by the Licensor Patents that Licensor shall offer to Merck pursuant to Section 3.6 below, (b) any [**], (all described together in this clause (b) hereinafter **"Follow-On Compound Improvements"**), and (c) any [**]. Notwithstanding the foregoing, for purposes of Sections 1.58 and 5.4, a Follow-On Compound shall not cease to be a Follow-On Compound upon

expiration of the last Licensor Patent Covering such Follow-On Compound. The [**] TLR-9 agonists identified in clause (a) shall meet the criteria identified on Schedule 1.24.

1.25 "**Governmental Body**" means any: (a) nation, principality, state, commonwealth, province, territory, county, municipality, district or other jurisdiction of any nature; (b) federal, state, local, municipal, foreign or other government; (c) governmental or quasi-governmental authority of any nature (including any governmental division, subdivision, department, agency, bureau, branch, office, commission, council, board, instrumentality, officer, official, representative, organization, unit, body or entity and any court or other tribunal); (d) multi-national or supranational organization or body; or (e) individual, entity, or body exercising, or entitled to exercise, any executive, legislative, judicial, administrative, regulatory, police, military or taxing authority or power of any nature.

1.26 **"Improvement(s)"** means Compound Improvement(s) and Follow-On Compound Improvement(s).

1.27 "**Indication**" means a generally acknowledged disease or condition, a significant manifestation of a disease or condition, or symptoms associated with a disease or condition or a risk for a disease or condition. For the avoidance of doubt, all variants of a single disease or condition (whether classified by severity or otherwise) shall be treated as the same Indication.

1.28 "**Initiation**" of a Clinical Trial means the first dosing of the first patient or subject in such Clinical Trial.

1.29 "**IND**" means an investigational new drug application filed with the FDA or the equivalent application or filing filed with any equivalent agency or Governmental Body outside the United States (including any supra-national entity such as in the European Union) for approval to commence Clinical Trials in such jurisdiction, and including all regulations at 21 CFR §312 et seq. and equivalent foreign regulations.

1.30 **"Joint Patent(s)"** means any Patent Right describing or claiming a Joint Invention.

1.31 "**Know-How**" means any scientific or technical information, results and data of any type whatsoever, in any tangible or intangible form whatsoever, that is not in the public domain or otherwise publicly known, including, without limitation, discoveries, inventions, trade secrets, databases, practices, protocols, regulatory filings, methods, processes, techniques, biological and other materials, reagents, specifications, formulations, formulae, data (including pharmacological, biological, chemical, toxicological and clinical information) analytical, quality control, and stability data, studies and procedures), and manufacturing process and development information, results and data, whether or not patentable.

1.32 "**Knowledge**" means, with respect to a matter that is the subject of a given representation, or warranty of Licensor, the knowledge, information or belief that any officer or director level employee (other than a member of the board of directors) of Licensor, or such other employee of Licensor who would reasonably be expected to have knowledge of the matter in question, has, or should reasonably be expected to have, after making reasonable inquiry into the relevant subject matter. "**Knowingly**" means with Knowledge.

1.33 "**Label**" means the specific label approved by the Regulatory Authority or pursued in clinical Development with respect to a Compound, Follow-On Compound or Licensed Product, whether within an Indication or a separate Indication.

1.34 "**Law**" or "**Laws**" means all applicable laws, statutes, rules, regulations, ordinances and other pronouncements having the binding effect of law of any Governmental Body.

1.35 "**Licensed Product**" means any pharmaceutical product, including any formulation thereof, containing or comprising any Compound or Follow-On Compound.

1.36 "**Licensor Know-How**" means all Know-How that is Controlled by Licensor as of the Signing Date or thereafter during the Term and is necessary or useful for the research, Development, manufacture, use, or Commercialization of any Compound or Follow-On Compound in the Field.

1.37 "**Licensor Materials**" means the quantities of Compounds and Follow-On Compounds identified on Schedule 1.37.

1.38 "**Licensor Patents**" means all Patent Rights, including but not limited to the Patent Rights set forth on Schedule 1.38 and Licensor's interest in Joint Patents, that are Controlled by Licensor as of the Execution Date or during the Term and that are necessary or useful (but with respect to the "usefulness of Licensor Patents" only those that are not licensed in by Licensor after the Signing Date, unless the Licensor agrees otherwise) for the research, Development, manufacture, use, or Commercialization of Compounds or Follow-On Compounds in the Field. Schedule 1.38 shall be updated from time to time during the Term.

1.39 "**Licensor Technology**" means the Licensor Patents, Licensor's interest in Joint Patents, the Licensor Know-How and the Licensor Materials.

1.40 **"Major EU Country(ies)"** means France, Germany, Italy, Spain and/or the United Kingdom.

1.41 "**Merck Patents**" means all Patent Rights, that are Controlled by Merck as of the Signing Date or during the Term, and, for greater certainty, shall include Patent Rights claiming Merck's Sole Inventions.

1.42 "**Merck Competitor**" means any company that (itself or through an Affiliate) markets, sells or is developing, a product that is, or could reasonably be expected to be, in competition with any product that Merck (itself or through an Affiliate) markets, sells or is developing.

1.43 "**Merck & Co. Agreement**" means the Exclusive License and Research Collaboration Agreement by and between Merck & Co., Inc. and Idera Pharmaceuticals, Inc. dated December 8, 2006, as amended from time to time.

1.44 "**NDA**" means a New Drug Application filed pursuant to the requirements of the FDA, as more fully defined in U.S. statutory provisions 21 CFR §314.3 et seq., a Biologics

License Application filed pursuant to the requirements of the FDA, as more fully defined in U.S. statutory provision 21 CFR §601, and any equivalent application filed in any country in the Territory, together, in each case, with all additions, deletions, supplements or variations thereto.

1.45 "**NDA Acceptance**" means acceptance for filing by the relevant Regulatory Authority of an NDA for the Licensed Product.

1.46 "**Net Sales**" means the gross amounts invoiced by Merck, its Affiliates and Sublicensees for sales of a Licensed Product to independent or unaffiliated Third Party purchasers of such Licensed Product, less the following deductions with respect to such sales to the extent that such amounts are either included in the billing as a line item as part of the gross amount invoiced, or otherwise documented in accordance with IFRS to be specifically attributable to actual sales of a Licensed Product, and incurred by Merck, its Affiliates and Sublicensees consistent with usual and customary practices for their products generally: (i) trade discounts, including trade, cash and quantity discounts, or rebates, credits or refunds; (ii) allowances or credits actually granted upon claims, returns or rejections of products, including recalls, regardless of the party requesting such recall; (iii) credits and allowances for wastage replacement and bad debts; (iv) charges included in the gross sales price for freight, insurance, transportation, postage, handling, insurance and any other charges relating to the sale, transportation delivery or return of the Licensed Product; (v) customs duties, sales, excise and use taxes and any other governmental charges (including value added tax) actually paid in connection with the transportation, distribution, use or sale of the Licensed Product (but excluding what is commonly known as income taxes); (vi) rebates and chargebacks or retroactive price reductions made to federal, state, or local governments (or their agencies), or any Third Party payor, administrator or contractee, including managed health organizations; (vii) payments to Third Party wholesalers pursuant to inventory management agreements; and (viii) the actual cost of goods of the delivery device that is included in the invoiced amount and is used for administration of the Licensed Product.

If a Licensed Product is sold in the form of a Combination Product, then for the purpose of calculating royalties owed under this Agreement on sales of the Combination Product, Net Sales shall be calculated on a country-by-country basis as follows:

(a) first, Merck shall determine the actual Net Sales of such Combination Product (calculated using the above described deductions) and then such amount shall be multiplied by the fraction A/(A+B), where A equals the invoice price of such Licensed Product sold separately in finished form and B equals the invoice price of the relevant other product(s) sold separately in finished form, in each case in the relevant country in which sales were made, or, if separate sales were not made for both such Licensed Product and such other product(s) in such country but were made in the US and/or a Major EU Country(-ies), in the US and/or such Major EU Country(-ies) in which both such Licensed Product and such other product(s) were sold separately during the same royalty reporting period;

(b) In the event that the Licensed Product is sold separately in finished form and the relevant other product(s) is not, and subsection (a) above does not apply, then Net Sales shall be determined by multiplying the Net Sales of the Combination Product in the applicable country by the fraction (A/C), where A is the invoice price of the Licensed Product

when sold separately in finished form and C equals the invoice price of such Combination Product in the applicable country;

(c) In the event that the relevant other product(s) is sold separately in finished form and the Licensed Product is not, and neither subsection (a) nor subsection (b) above applies, then Net Sales shall be determined by multiplying the Net Sales of the Combination Product in the applicable country by the fraction (D/(D+E)), where D is the actual cost of goods incurred by Merck or any of its Affiliates or Sublicensees, as applicable, in connection with the Licensed Product in the applicable country and E is the actual costs of goods incurred by Merck or any of its Affiliates or Sublicensees, as applicable in connection with such Combination Product in the applicable country; and

(d) In the event that no separate sale of either Licensed Product or the relevant other product(s) is made during the applicable royalty reporting period in the relevant country in which the sale of the Combination Product was made, and neither subsection (a) nor subsection (b) above applies, then Net Sales shall be determined by multiplying the Net Sales of the Combination Product in the applicable country by a fraction (D/(D+E)), where D is the actual cost of goods incurred by Merck or any of its Affiliates or Sublicensees, as applicable, in connection with the Licensed Product in the applicable country and E is the actual costs of goods incurred by Merck or any of its Affiliates or Sublicensees, as applicable in connection with such Combination Product in the applicable country.

For clarification, sale of Licensed Products by Merck, its Affiliates or Sublicensees to another of these entities for resale by such entity to a Third Party shall not be deemed a sale for purposes of "Net Sales" hereunder. Further, transfers or dispositions of the Licensed Products (i) in connection with patient assistance programs, (ii) for charitable or promotional purposes, (iii) for preclinical, clinical, regulatory or governmental purposes or under so-called "named patient" or other limited access programs, (iv) for use in any tests or studies reasonably necessary to comply with any Law, regulation or request by a regulatory or Regulatory Authority shall not, in each case, be deemed "Net Sales."

1.47 "**Out-of-Pocket Expenses**" means expenses actually paid by a Party to any Third Party which is either (i) not an Affiliate of such Party, or (ii) is an Affiliate of such Party where such payment is limited to reimbursing such Affiliate with such expenses actually paid by such Affiliate to a Third Party which is not an Affiliate.

1.48 "**Patent Right**" means: (a) an issued or granted patent, including any extension, supplemental protection certificate, registration, confirmation, reissue, reexamination, extension or renewal thereof; (b) a pending patent application, including any continuation, divisional, continuation-in-part, substitute or provisional application thereof; and (c) all counterparts or foreign equivalents of any of the foregoing issued by or filed in any country or other jurisdiction.

1.49 "**Person**" means any natural person, corporation, firm, business trust, joint venture, association, organization, company, partnership or other business entity, or any government or agency or political subdivision thereof.

1.50 "**Phase I Trial**" means a clinical trial in which the Licensed Product is administered to human subjects in the United States that would satisfy the requirements of U.S. statutory provision 21 CFR §312.21(a), or an equivalent clinical trial in any country outside the United States that would satisfy the requirements applicable to such clinical trial in such country.

1.51 "**Phase I/II Trial**" means (a) a Phase I Clinical Trial and a Phase II Clinical Trial, collectively or (b) a single Clinical Trial meeting the requirements of a Phase I Clinical Trial and a Phase II Clinical Trial.

1.52 "**Phase II Trial**" means a clinical trial of the Licensed Product in human patients in the United States that would satisfy the requirements of U.S. statutory provision 21 CFR §312.21(b) or an equivalent clinical trial in any country outside the United States that would satisfy the requirements applicable to such clinical trial in such country.

1.53 "**Phase III Trial**" means a human clinical trial of the Licensed Product in the United States that would satisfy the requirements of U.S. statutory provision 21 CFR §312.21(c) or an equivalent clinical trial in any country outside the United States that would satisfy the requirements applicable to such clinical trial in such country.

1.54 "**Phase IV Studies**" means a study or data collection effort for the Licensed Product that is initiated in the Territory after receipt of Regulatory Approval for the Licensed Product.

1.55 "**Price Approvals**" means in those countries in the Territory where Regulatory Authorities approve or determine pricing and/or pricing reimbursement for pharmaceutical products, such approval or determination.

1.56 "**Regulatory Authority**" means (a) the FDA, (b) the EMEA or the European Commission, or (c) any regulatory body with similar regulatory authority over pharmaceutical or biotechnology products in any other jurisdiction anywhere in the world.

1.57 "**Regulatory Approval**" means any and all approvals, licenses, registrations, or authorizations of the relevant Regulatory Authority, including Price Approvals, legally necessary for the Development, manufacture, use, storage, import, transport or Commercialization of the Licensed Product in a particular country or jurisdiction.

1.58 "**Royalty Term**" means, on a Licensed Product-by-Licensed Product and country-by-country basis, the period from the First Commercial Sale of a Licensed Product in such country until the later of (a) the last date on which the Licensed Product is Covered by a Valid Claim within the Licensor Patents in such country, and (b) ten (10) years after the First Commercial Sale of such Licensed Product in such country.

1.59 "**Sublicensee**" means a Person other than an Affiliate of Merck to which Merck (or its Affiliate) has, pursuant to Section 2.2, granted sublicense rights under any of the license rights granted under Section 2.1.

1.60 "**Territory**" means all countries of the world.

1.61 "**Third Party**" means any Person other than Licensor, Merck or Affiliates of either of them.

1.62 "**Third Party License Agreement**" means any agreement entered into with a Third Party, by Merck or its Affiliates or Sublicensees, or any amendment or supplement thereto, whereby royalties, fees or other payments are to be made to the Third Party in connection with the grant of rights under intellectual property rights owned or controlled by such Third Party that Cover in the Field (i) the composition of matter, (ii) method of use, or (iii) manufacture of a Compound or Follow-On Compound, but with regard to (iii) only those techniques and processes that are used in manufacturing of the Compound or Follow-On Compound as of the Signing Date.

1.63 **"TLR-9"** means the human toll-like receptor 9, as described in [**].

1.64 "**Valid Claim**" means a claim of an issued and unexpired patent which has not lapsed or been revoked, abandoned or held unenforceable or invalid by a final decision of a court or governmental or supra-governmental agency of competent jurisdiction, unappealable or unappealed within the time allowed for appeal, and which has not been disclaimed, denied or admitted to be invalid or unenforceable through reissue, reexamination or disclaimer or otherwise.

1.65 **Other Terms**. The definition of each of the following terms is set forth in the section of the Agreement indicated below:

"**Act"** has the meaning set forth in Section 4.3(b).

"Action" has the meaning set forth in Section 6.6(b).

"Cancer Vaccine" has the meaning set forth in Section 1.22.

"Compound Improvements" has the meaning set forth in Section 1.11.

"**Development Plan**" has the meaning set forth in Section 3.1.

"**Development Support**" has the meaning set forth in Section 3.4.

"DOJ" has the meaning set forth in Section 12.3(a).

"**Executive Officers**" has the meaning set forth in Section 11.2.

"Follow-On Compound Improvements" has the meaning set forth in Section 1.24(b).

"FTC" has the meaning set forth in Section 12.3(b).

"HSR Act" has the meaning set forth in Section 12.3(c).

"HSR Clearance" has the meaning set forth in Section 12.3(d).

"HSR Clearance Date" has the meaning set forth in Section 12.3(e).

"HSR Filings" has the meaning set forth in Section 12.3(f).

"**IFRS**" has the meaning set forth in Section 13.6.

"Joint Inventions" has the meaning set forth in Section 6.3.

"JRC" has the meaning set forth in Section 3.5(a).

"**Licensor Indemnitees**" has the meaning set forth in Section 9.1.

"**Manufacturing Support**" has the meaning set forth in Section 3.8.

"**Manufacturing Technology Transfer**" has the meaning set forth in Section 2.4.

"**Merck Indemnitees**" has the meaning set forth in Section 9.2.

"Merck Trial Monitor" has the meaning set forth in Section 3.2.

"**On-Going Trials**" has the meaning set forth in Section 3.2.

"Owned Affiliate" has the meaning set forth in Section 1.14.

"**Sole Invention(s)**" has the meaning set forth in Section 6.3.

"**Term**" has the meaning set forth in Section 10.1.

"**Termination Date**" has the meaning set forth in Section 10.1.

"**TLR(s)**" has the meaning set forth in the Preamble.

"**Third Party Action**" has the meaning set forth in Section 6.7(a).

Article 2

LICENSES AND OTHER RIGHTS

2.1 **Grant of License to Merck**. Subject to the terms and conditions of this Agreement, Licensor hereby grants to Merck an exclusive (even as to Licensor), worldwide, royalty-bearing right and license (with the right to sublicense subject to the provisions of Section 2.2) under the Licensor Technology to research, Develop, make, have made, import, export, use and Commercialize the Licensed Products in the Field in the Territory and create Improvements; provided that Merck, its Affiliates and Sublicensees shall have no right to, and Merck, its Affiliates and Sublicensees shall not, (a) alter the core structure of any Compound or Follow-On Compound, or (b) use the Licensor Technology to create any immunomodulatory oligonucleotide that is the same or substantially structurally equivalent to any Compound or Follow-On Compound or that is Covered by the Licensor Patents. For purposes of clarity, the license granted herein shall in no event include any right or license to, and Merck and its Affiliates and Sublicensees shall not, research, Develop, make or have made, import, export, use or Commercialize any Compound, Follow-On Compound or Licensed Product outside the Field,

including for any use of a Compound, Follow-On Compound or Licensed Product as an adjuvant contained in or administered in conjunction with any Cancer Vaccine.

2.2 **Grant of Sublicense by Merck**. Merck shall have the right to grant sublicenses under the licenses granted in Sections 2.1 and 2.2 subject to the following conditions:

(a) the granting by Merck of a sublicense shall not relieve Merck of any of its obligations hereunder;

(b) the Sublicensee agrees to be bound by all the relevant terms of this Agreement, including Sections 2.7, 2.8, 3.9, 5.7, 5.8, 5.9 and 5.11;

(c) Merck shall provide Licensor with a copy of the executed sublicense agreement within ten (10) days after execution thereof; provided that all such terms of such sublicense agreement that are not material to Licensor's assessment of whether the sublicense complies with the terms of this Section 2.2 may be redacted by Merck;

(d) Merck shall procure that each of its Sublicensees complies with, and Merck additionally guarantees to Licensor the compliance by each of its Sublicensees with, all relevant restrictions and limitations in this Agreement; and

(e) in the event of a material default by any Sublicensee under a sublicense agreement Merck will promptly inform Licensor and take such action, after consultation with Licensor, that in Merck's reasonable business judgment will address such default.

2.3 **Technology Transfer**. As soon as reasonably practicable after the Effective Date, and in any event within thirty (30) days after the Effective Date, (a) Licensor will transfer to Merck, at Licensor's cost and expense, the Licensor Know-How set forth on Schedule 2.3, and (b) Merck and Licensor shall use Commercially Reasonable Efforts to establish mechanisms to allow Merck to obtain the benefit of all applications and filings made by Licensor with any Regulatory Authority with respect to the Compounds and Licensed Products containing Compounds, including any IND and orphan drug designations, in each case that are related to the rights and licenses granted hereunder to Merck in the Field (it being understood that such mechanisms may involve Licensor continuing to hold any such IND, subject to the provisions of the pharmacovigilance agreement to be negotiated pursuant to Section 4.3(a)); provided that Idera shall assign to Merck all applications and filings made by Licensor with any Regulatory Authority with respect to Follow-On Compounds and Licensed Products containing Follow-On Compounds, including any IND and orphan drug designations.

2.4 **Manufacturing Technology Transfer.** As soon as reasonably practicable after the Effective Date, but in no event later than thirty (30) days following the Effective Date, Licensor will transfer to Merck, at Licensor's cost and expense, a copy of the Licensor Know-How and the Licensor Materials set forth in item I of Schedule 2.4. The Parties will use Commercially Reasonable Efforts to generate and transfer to Merck, as soon as reasonably practicable after the Effective Date, a copy of the Licensor Know-How and the Licensor Materials set forth in Item II of Schedule 2.4. The technology transfer described in this Section 2.4 shall be referred to as the "**Manufacturing Technology Transfer**".

2.5 **Procedures for Technology Transfer**. The technology transfers set forth in Section 2.3 and Section 2.4 shall occur in an orderly fashion and in a manner such that the value, usefulness and confidentiality of the transferred Licensor Know-How and Licensor Materials are preserved in all material respects.

2.6 **Merck Exclusivity**. During the Term of this Agreement, Licensor and its Affiliates shall not develop, make, have made, sell, or have sold, any Competing Product for use in the Field nor enter into any relationship with any Third Party granting such Third Party any such rights; provided that, with respect to Affiliates other than Owned Affiliates, the foregoing restriction shall be limited as follows: (a) the definition of Competing Product shall be limited to agonist compounds that stimulate TLR-9 and are developed for use in the Field, (b) such restriction shall not apply to non-clinical research activities conducted by such Affiliates that are not Owned Affiliates, and (c) such restriction shall only apply from the Effective Date through the fifth (5th) anniversary of the Effective Date. In addition, during the Term of this Agreement, Licensor and its Affiliates shall not develop, make, have made, sell, or have sold, IMO-2055, whether as monotherapy or as combination therapy, for use in or outside the Field, nor enter into any relationship with any Third Party granting such Third Party any such rights, provided however that the rights granted to Merck & Co. under the Merck & Co. Agreement at the Signing Date and Licensor's performance under the Merck & Co. Agreement shall not constitute a violation of this Section 2.6, and nothing in this Section 2.6 shall prevent Licensor from exploiting such rights or granting such rights to another Third Party within the same scope provided therein should the Merck & Co. Agreement expire or terminate. Further, during the Term of this Agreement, Licensor and its Affiliates shall not conduct a Phase III Trial of IMO-2125 as monotherapy, or Commercialize IMO-2125 as monotherapy, in or outside the Field, nor enter into any relationship with any Third Party granting such Third Party any such rights. The aforementioned restrictions shall remain in effect in the event of a Change of Control of Licensor involving a Merck Competitor, and, subject to the proviso in the first sentence of this Section 2.6, shall apply to the Merck Competitor who is the successor to, or assignee of, Licensor as a result of such Change of Control.

2.7 **No Implied Licenses; Retained Rights**. Except as specifically set forth in this Agreement, neither Party shall acquire any license or other intellectual property interest, by implication or otherwise, in any information or materials disclosed to it under this Agreement or under any patent applications, patents or other intellectual property rights Controlled by the other Party or its Affiliates. Merck acknowledges that Licensor has (a) retained the right to research, Develop, make and have made, import, export, use and Commercialize Compounds outside the Field, and to grant such rights to others, and (b) prior to the Signing Date Licensor has granted certain rights to Merck & Co., Inc. to research, Develop, make and have made, import, export, use and Commercialize Compounds outside the Field.

2.8 **Limitations on Use of Compounds and Follow-On Compounds**. Merck understands and agrees that the Compounds and Follow-on Compounds are only to be used for the research, Development, manufacture or Commercialization of Compounds, Follow-On Compounds and Licensed Products in the Field in accordance with this Agreement.

Article 3

PRODUCT DEVELOPMENT AND COMMERCIALIZATION; REGULATORY MATTERS

3.1 **Development of the Licensed Products by Merck**. Merck shall have the exclusive right, at its own cost, to research and Develop the Licensed Products and to conduct (either itself or through its Affiliates, agents, subcontractors and/or Sublicensees) all Clinical Trials and non-clinical studies Merck believes appropriate to obtain Regulatory Approval for the Licensed Products in any Indication in the Field. The Development of each Licensed Product in the Field shall be governed by a development plan that describes the proposed overall program of Development (the "**Development Plan**"), which Development Plan will be updated by Merck at least [**]. Subject to the terms of this Agreement, including Section 3.9, Merck shall have the sole right and responsibility for preparing the Development Plan for each Licensed Product in the Field, and shall in all events have the sole decision-making authority regarding each Development Plan and the Development of each Licensed Product in the Field, including the determination of which Indications in the Field to pursue with respect to each such Licensed Product.

3.2 **Clinical Trials On-Going as of Signing Date**. Following the Effective Date (a) Licensor shall continue, and shall use Commercially Reasonable Efforts to complete, (i) *[**],* and (ii) *[**]*; and (b) the Parties shall use Commercially Reasonable Efforts to transfer to Merck as soon as is reasonably practicable responsibility for the conduct of (i) *[**];* and (ii) *[**]* (all of the Clinical Trials in (a) and (b), collectively, the **"Ongoing Trials"**). Each Party shall, in conducting its respective activities with respect to the On-Going Trials, conduct its activities in a good scientific manner and in compliance with all applicable Laws, and cGCP and cGLP standards, as applicable. Merck shall, within thirty (30) days after the Effective Date, appoint a representative that shall be an active member of the Licensor team responsible for the conduct or transfer to Merck of the On-Going Trials (the "**Merck Trial Monitor**") and Licensor hereby accepts that the Merck Trial Monitor shall have such role in the conduct or transfer to Merck of the On-Going Trials. The Merck Trial Monitor shall in particular: (A) be informed by Licensor, on a periodic basis as required by the Merck Trial Monitor, of all events and activities related to the On-Going Trials, (B) take part in discussions and interactions with the sites and the Regulatory Authorities for the On-Going Trials and shall have the right to make direct contact with such sites and Authorities, provided it informs Licensor thereof; and (C) take part in all decisions related to the On-Going Trials and Licensor hereby accepts that no material decisions relating to the On-Going Trials shall be taken without the prior written consent of the Merck Trial Monitor (which consent, if given, shall be provided in a timely manner so as not to delay the conduct or transfer of the On-Going Trials). Licensor shall, within thirty (30) days after the Effective Date, deliver to the Merck Trial Monitor copies of all relevant materials, data and regulatory information (including all INDs) related to the On-Going Trials, whether written or electronic, including all relevant clinical safety and efficacy data and all regulatory data and information related to the use and sale of the Licensed Product in the Field. Within thirty (30) days after the end of each Calendar Quarter during the conduct or transfer of the On-Going Trials, Licensor shall deliver to the Merck Trial Monitor new materials, data and information in its possession relating to the On-Going Trials, in an orderly fashion and in a manner such that confidentiality in the delivered information is preserved in all material respects.

3.3 **Reimbursement of Development Costs**. All Development Costs incurred by Licensor after the Effective Date relating to the On-Going Trials shall be paid by Merck in accordance with the budget set forth in Schedule 3.3 (the **"Budget"**). Within forty-five (45) days after the end of each Calendar Quarter during the conduct of the On-Going Trials by Licensor, Licensor shall submit an invoice to Merck for the budgeted and approved Development Costs relating to the On-Going Trials it incurred during such Calendar Quarter, setting forth in reasonable detail such Development Costs. Following receipt of such written invoice, Merck shall, within thirty (30) days after receipt of such written report, reimburse Licensor those budgeted and approved Development Costs incurred by Licensor relating to the On-Going Trials during such Calendar Quarter. For the avoidance of doubt, Merck shall have no obligation to reimburse any Development Costs not set forth in the Budget or otherwise approved in writing by Merck.

3.4 **Licensor Support in the Development.** For a period of [**] starting from Effective Date, Licensor shall make its employees that are knowledgeable on the Compound or Follow-On Compound, its properties and functions, reasonably available to Merck, at Licensor's facilities, for scientific and technical explanations, advice and support, that may reasonably be required by Merck, relating to the Development and registration of the Compound, Follow-On Compound and the Licensed Products (the "**Development Support**"). The Development Support shall be provided by Licensor [**] during such first [**] following the Effective Date. Thereafter, during the remaining [**] period, Merck shall reimburse Licensor for Licensor's reasonable Out-of-Pocket Expenses incurred in providing the Development Support should Merck require any of such Development Support, subject however to Licensor providing Merck with documented evidence of such Out-of-Pocket Expenses having been incurred.

3.5 **Joint Research Committee.**

(a) **Composition of the Joint Research Committee**. The Parties shall form a joint research committee (the **"JRC"**) comprised of two (2) representatives of Merck and two (2) representatives of Licensor. Each Party shall name its JRC representatives and notify the other Party of its JRC representatives promptly following the Effective Date. Each Party may change its representatives to the JRC from time to time, in its sole discretion, effective upon notice to the other Party of such change. These representatives shall have appropriate technical credentials, experience and knowledge. Additional representatives or consultants may from time to time, by mutual consent of the Parties, be invited to attend JRC meetings. The JRC shall be chaired by a representative of Licensor, but shall function solely as a forum for exchanging certain information and not as a decision-making body. Each Party shall bear its own expenses related to the attendance at such meetings by its representatives.

(b) **Role of JRC**. The JRC's role as a forum for exchanging information shall consist of (a) conferring regularly regarding Licensor Know-How relating to Compounds or Follow-On Compounds, (b) conferring regularly regarding the status of preclinical testing of Follow-On Compounds, (c) reviewing data regarding Follow-On Compounds, and considering and advising on any technical issues that arise with respect to Follow-On Compounds and (d) addressing such other matters relating to Licensor's provision of Follow-On Compounds pursuant to Section 3.6 and Merck's testing thereof as either Party may bring before the JRC. The JRC shall not have any supervisory or decision making authority. Licensor shall use

Commercially Reasonable Efforts to incorporate guidance provided by Merck's JRC representatives regarding the desired properties of Follow-On Compounds in synthesizing or otherwise identifying Follow-On Compounds to be delivered by Licensor pursuant to Section 3.6 after such time as Licensor receives such guidance.

(c) **Meetings**. The JRC shall meet in accordance with a schedule established by mutual written agreement of the Parties, but no less frequently than [**] per Calendar Quarter during any period in which Licensor remains obligated to provide Follow-On Compounds pursuant to Section 3.6, or in the period thereafter, no less than [**] a year for as long as Merck is clinically developing Compounds or Follow-On Compounds (including Phase IV Studies), with the location for such meetings alternating between Licensor and Merck facilities (or such other location as may be determined by the JRC). Alternatively, the JRC may meet by means of teleconference, videoconference or other similar communications equipment. Unless otherwise mutually agreed by the Parties, the JRC shall disband and cease to meet once Merck no longer clinically develops Compounds or Follow-On Compounds (including Phase IV Studies).

3.6 **Follow-On Compounds**. Licensor shall provide Merck with [**] TLR-9 agonists for evaluation purposes within a period of [**] after the Effective Date in accordance with the following schedule: (a) [**] of such Follow-On Compounds will be provided by Licensor within [**] after the Effective Date, (b) an additional [**] Follow-On Compounds shall be provided on or before [**] after the Effective Date, (c) an additional [**] Follow-On Compounds shall be provided on or before [**] after the Effective Date and (d) an additional [**] Follow-On Compounds shall be provided on or before [**] after the Effective Date. Merck shall have the right, for a period commencing on the Effective Date and ending [**] after the last batch of Follow-On Compounds is delivered to Merck pursuant to this Section 3.6, to select up to [**] of the [**] Follow-On Compounds for further Development and Commercialization. Licensor shall transfer to Merck, at Licensor's reasonable cost and expense, data relating to such Follow-On Compounds as set forth in Schedule 1.24. Merck shall make its election in writing, and upon such election, (a) the Follow-On Compounds shall be made part of Licensed Products, and be subject to the terms and conditions applying to Licensed Products under this Agreement, and (b) the remaining [**] compounds not selected by Merck shall no longer be considered Follow-On Compounds hereunder. In addition, Licensor agrees that it shall not, either by itself, through any of its Affiliates or through any Third Party, Develop and/or Commercialize any of the Follow-On Compounds selected by Merck outside the Field.

3.7 **Commercialization**. Subject to the terms and conditions of this Agreement, including Merck's obligations under Section 3.9, Merck shall have the sole authority and the exclusive right to Commercialize the Licensed Products in the Field, itself or through one or more Affiliates or Third Parties selected by Merck, and shall have the sole authority and responsibility in all matters relating to the Commercialization of the Licensed Products in the Field.

3.8 **Manufacturing and Supply**. Subject to the terms and conditions of this Agreement, Merck shall have the exclusive right to manufacture the Compounds, the Follow-On Compounds and the Licensed Products in the Field, itself or through one or more Third Parties selected by Merck. Starting from the Effective Date and for [**] thereafter, Licensor shall make

its employees that are knowledgeable on the manufacture of the Compound, the Follow-On Compound and the Licensed Product reasonably available to Merck, at Licensor's facilities, for scientific and technical explanations, advice and support, that may reasonably be required by Merck, relating to the manufacture of the Compound, the Follow-On Compound and the Licensed Products and the Manufacturing Technology Transfer (the "**Manufacturing Support**"). The Manufacturing Support shall be provided by Licensor [**] during the [**] period following Effective Date. Merck shall reimburse Licensor for Licensor's Out-of-Pocket Expenses incurred in providing the Manufacturing Support during the [**] period thereafter, subject to Licensor providing Merck with documented evidence of such Out-of-Pocket Expenses having been incurred.

3.9 **Diligence by Merck**. Subject to Licensor's fulfillment of its obligations under this Agreement, Merck shall use Commercially Reasonable Efforts to Develop and, upon receipt of Regulatory Approval, Commercialize a Licensed Product in the Field. Merck shall have the exclusive right to determine, in its sole discretion, the launch strategy for such Licensed Products, based on its exercise of Commercially Reasonable Efforts and the availability of any necessary Third Party licenses or other rights. Activities by Merck's Affiliates and Sublicensees will be considered as Merck's activities under this Agreement for purposes of determining whether Merck has complied with any obligation to use Commercially Reasonably Efforts.

3.10 **Annual Reporting**. Merck shall, on each anniversary of the Signing Date, provide Licensor with a written report summarizing in reasonable detail its Development and, as applicable, Commercialization activities conducted during the prior Calendar Year.

3.11 **Trademarks.** As between Licensor and Merck, Merck shall have the sole authority to select trademarks for the Licensed Products in the Field, and shall own all such trademarks. Licensor hereby assigns to Merck all of its rights, title and interest in and to the trademark IMOxine and agrees to transfer to Merck any registrations therefor held by Licensor. Licensor shall execute any confirmatory assignment necessary or desirable to further effect such assignment and transfer upon request by Merck.

Article 4

REGULATORY MATTERS

4.1 **Regulatory Filings**. As between Merck and Licensor, Merck shall own and maintain all regulatory filings and Regulatory Approvals for the Licensed Products in the Field, including all INDs and NDAs, except the [**] for [**] and [**] for [**] which will be owned and maintained by Licensor. Licensor shall provide reasonable assistance to Merck, its Affiliates and any Merck Sublicensee in the preparation of and filing for any INDs, IND amendments or NDAs with respect to Licensed Products for use in the Field. Such assistance shall include, in particular, Licensor providing Merck with a complete electronic copy of all relevant documentation submitted to the FDA in the context of [**] for [**] and [**] for [**] necessary to enable Merck to submit its own IND for IMO-2055 and IMO-2125 in the Field, and to allow Merck to cross-reference such INDs held by Licensor.

4.2 **Communications with Authorities**. Merck (or one of its Affiliates or Sublicensees) shall be responsible for and act as the sole point of contact for communications with Regulatory Authorities in connection with the Development, Commercialization, and manufacturing of Licensed Products in the Field after the end of the communications relating to the Ongoing Trials that were initiated by Licensor before the Signing Date. Following the Effective Date, Licensor shall not initiate, with respect to any Licensed Product in the Field, any meetings or contact with Regulatory Authorities without Merck's prior written consent. To the extent Licensor receives any written or oral communication from any Regulatory Authority relating to a Licensed Product in the Field, Licensor shall (i) refer such Regulatory Authority to Merck, and (ii) as soon as reasonably practicable, notify Merck and provide Merck with a copy of any written communication received by Licensor or, if applicable, complete and accurate minutes of such oral communication.

4.3 **Adverse Event Reporting.**

(a) The Parties agree to meet within [**] after the Effective Date to commence negotiations of a more detailed pharmacovigilance agreement. Such pharmacovigilance agreement shall provide for the exchange by the Parties of any information of which a Party becomes aware in the Territory concerning any side effect, injury, toxicity or sensitivity reaction, or any unexpected incident, in or involving a subject or, in the case of non-clinical studies, an animal in a toxicology study, and the seriousness thereof, whether or not determined to be attributable to any Licensed Product, Compound or Follow-On-Compound (hereinafter **"Adverse Experience"**), including information regarding Adverse Experiences received by either Party from Third Parties. The Parties contemplate that initially Licensor will be responsible for receiving and providing information regarding Adverse Experiences from and to both Merck and Merck & Co. relating to Compounds, subject to confidentiality and other legal obligations.

(b) With respect to Adverse Experiences that are serious and associated with the use of any Licensed Product, whether or not determined to be attributable to any such Licensed Product (hereinafter **"Serious Adverse Experience"**), (i) in the event Licensor receives a Serious Adverse Experience report from any Third Party, Licensor shall notify Merck in writing within two (2) calendar days of receipt of such report, and (ii) in the event a Serious Adverse Experience report is to be generated by either Party, such Party shall provide its report to the other within four (4) calendar days for death and life threatening, and seven (7) calendar days for all other Serious Adverse Experience reports.

(c) With respect to INDs filed by Merck, Merck shall be responsible for reporting to Regulatory Authorities any Adverse Events, whether in non-clinical or clinical studies for or during commercialization of any Licensed Product in the Field in compliance with the requirements of the United States Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 321 et seq., the regulations promulgated thereunder, and equivalent foreign Laws. It is understood that these adverse experience reporting requirement provisions are based on the policies and procedures of Merck and regulatory requirements.

(d) The relevant information can be transmitted by e-mail, facsimile, overnight courier or any other means the Parties agree in the separate pharmacovigilance agreement.

Transmission to Licensor:

Drug Safety
c/o VP of Development Programs
167 Sidney Street
Cambridge, MA 02139
Drug Safety Mailbox: [**]
Facsimile: 617-679-5582

Transmission to Merck: Global Drug Safety
Frankfurter Straße 250
64271 Darmstadt, Germany
Drug Safety Mailbox: [**]
Facsimile: 49-6151-72- 6914

Article 5

FINANCIAL PROVISIONS

5.1 **Initial Fee.** In partial consideration of Licensor's grant of the rights and licenses to Merck under this Agreement, Merck shall make, or cause to be made, to Licensor, not later than (a) thirty (30) days after the Effective Date in the event that no HSR Filing is to be made, or fifteen (15) days after the Effective Date in the event that an HSR Filing is made, a one time payment in an amount expressed in Euros that is the equivalent to US Dollars forty million (USD 40,000,000.00), with the conversion of US Dollars into Euros to be made using the US Dollar/Euros exchange rate of the European Central Bank on the Effective Date, as set forth on the website of the European Central Bank (http://www.ecb.int/stats/exchange/eurofxref/html/index.en.html).

5.2 **Milestone Payments.**

(a) As further partial consideration for Licensor's grant of the rights and licenses to Merck under this Agreement, Merck shall pay, or cause to be paid to Licensor, the following milestone payments with respect to the first [**] Labels, irrespective of the number of Licensed Products. Such milestone payments shall accrue on the achievement of the applicable milestone event and, except as otherwise provided in Section 10.4(a)(ii), shall be paid by Merck on the later of: (i) [**] days after the achievement of each of the listed milestone events, and (ii) [**] months after the Effective Date. Merck shall promptly notify Licensor in writing of the occurrence of any such milestone event.

Milestone Event for Licensed Products	**Milestone Payment (€) Per Label**	**Milestone Payments (€) for first [**] Labels**
(1) Subject to Section 5.2(b), on a Label-by-Label basis, Initiation of the first Phase I Trial, or the first combined Phase I/II Trial, or first Phase II Trial, for each of the first [**] Labels	Euros [**] (€ [**])	Euros [**] (€ [**])

Milestone Event for Licensed Products	Milestone Payment (€) Per Label	Milestone Payments (€) for first [**] Labels
(2) Initiation of first Phase III Trial, for each of the first [**] Labels	Euros [**] (€ [**])	Euros [**] (€ [**])
(3) NDA Acceptance, for each of the first [**] Labels	Euros [**] (€ [**])	Euros [**] (€ [**])
(4) Regulatory Approval in the United States, for each of the first [**] Labels	Euros [**] (€ [**])	Euros [**] (€ [**])
(5) Regulatory Approval in the European Union, for each of the first [**] Labels	Euros [**] (€ [**])	Euros [**] (€ [**])
(6) Regulatory Approval in Japan, for each of the first [**] Labels	Euros [**] (€ [**])	Euros [**] (€ [**])

(b) With respect to the milestone payments set forth in Sections 5.2(a)(1), the first of such milestones achieved by a given Compound or Follow-On Compound may be achieved through a Phase I Clinical Trial of such Compound or Follow-On Compound, even if such Clinical Trial is (i) directed solely to the safety of such Compound or Follow-On Compound and/or (ii) is not directed to the use of such Compound or Follow-On Compound for any particular Indication in the Field; provided that in the case of such a trial that is the first Clinical Trial of a Compound or Follow-On Compound but is not specifically directed to a particular Label, the initiation of the second Phase I, Phase I/II or Phase II Clinical Trial with respect to the same Compound or Follow-On Compound shall not count as the "second Label" with respect to such Compound or Follow-On Compound.

(c) A milestone event that occurs in or with respect to the "European Union" shall mean any such event in or with respect to a milestone event relating to Regulatory Approval, in any three of the Major EU Countries.

(d) For purposes of this Section 5.2, Regulatory Approval for any Licensed Product in the United States or Japan, if not earlier achieved, shall be deemed to have been achieved upon the First Commercial Sale of such Licensed Product in the United States or Japan (as the case may be), and Regulatory Approval in the European Union, if not earlier achieved, shall be deemed to have been achieved upon the First Commercial Sale of a Licensed Product in at least [**] Major EU Countries.

(e) The milestone payments to be made under Section 5.2(a) shall be due and payable only once for the first [**] Labels to achieve the applicable milestone event, regardless of the number of Compounds, Follow-On Compounds and/or Licensed Products Developed, or the number of Indications pursued or approved or whether a Compound, Follow-

On Compound or Licensed Product is discontinued after a milestone payment has been made; provided that, if, after [**] or more of the Regulatory Approval milestone events set forth in Sections 5.2(a)(4), 5.2(a)(5) and 5.2(a)(6) has been achieved by [**] or more Licensed Products containing, as active ingredients, different Compound(s) or Follow-On Compound(s) (i.e., at least one of such Licensed Products must contain at least [**] Compound or Follow-On Compound that is not contained in at least [**] of such other Licensed Products), a milestone event set forth in Section 5.2(a)(1) or Section 5.2(a)(2) that has previously been achieved for at least [**] previous Labels is achieved for a [**] Label with a Licensed Product that contains a [**] or subsequent compound (i.e., a Compound or Follow-On Compound that is not contained in the Licensed Products described above that previously achieved a Regulatory Approval), then Merck shall not be obligated to pay Licensor the milestone payment amount otherwise payable under Section 5.2(a)(1) or Section 5.2(a)(2) for the achievement of such [**] Label milestone event by any Licensed Product containing such [**] or subsequent compound (but, again for greater certainty, shall continue to be obligated to pay to Licensor the milestone payments under Section 5.2(a)(3) through 5.2(a)(6) upon achievement of each such milestone).

(f) Subject to the proviso in Section 5.2(e) above, in the event that a milestone payment is made for one of the first [**] Labels (for purposes hereof, the "**Current Milestone Payment**"), and the preceding milestone payment for that same Label has not been made, then such preceding milestone payment shall be made concurrently with the Current Milestone Payment.

5.3 **Commercial Event Payments.**

As further partial consideration for Licensor's grant of rights and licenses to Merck under this Agreement, Merck shall pay Licensor the following amounts for the achievement of the following commercial event milestones:

[**] Euros (€ [**]) upon the first achievement of cumulative Net Sales for all Licensed Products greater than [**] Euros (€[**]) in a Calendar Year during the Royalty Term;

Such commercial event payment shall be made by Merck only once within ninety (90) days of the end of the Calendar Year in which the commercial event occurs.

5.4 **Royalty Payments for Licensed Products.** As further consideration for Licensor's grant of the rights and licenses to Merck hereunder, Merck shall, during the Royalty Term, pay to Licensor a royalty on Net Sales of the Licensed Products at the percentage rates set forth below (subject to Sections 5.5(a) and 5.5(b) below):

Annual Worldwide Licensed Product Net Sales (in €) per Calendar Year	**Incremental Royalty Rate**
For Net Sales of all Licensed Products from €[**]up to and including €[**]	[**]%
For that portion of Net Sales of all Licensed Products that is greater than €[**] and less than or equal to €[**]	[**]%
For that portion of Net Sales of all Licensed Products that is greater than €[**] and less than or equal to €[**]	[**]%

Annual Worldwide Licensed Product Net Sales (in €) per Calendar Year	Incremental Royalty Rate
For that portion of Net Sales of all Licensed Products that is greater than €[**]	[**]%

By way of illustration, assume in a Calendar Year that (i) Net Sales of all Licensed Products in Euros total €[**]and (ii) no adjustments or deductions to payments under this Article 5 apply. The total royalties due and payable by Merck to Licensor for such Net Sales would be € [**] Euros (€[**]), calculated as follows:

[**]

Total Royalty = €[**]

For purposes of determining whether a royalty threshold, or the commercial event milestone described in Section 5.3 above, has been attained, only Net Sales that are subject to a royalty payment shall be included in the total amount of Net Sales and any Net Sales of Licensed Products for which the applicable Royalty Term has expired shall be excluded. In addition, in no event shall the manufacture of a Licensed Product give rise to a royalty obligation. For clarity, Merck's obligation to pay royalties to Licensor under this Article 5 is imposed only once with respect to the same unit of Licensed Product regardless of the number of Licensor Patents pertaining thereto.

5.5 **Reductions and Reimbursements**.

(a) Subject to the terms herein, if Merck, its Affiliates or Sublicensees enter into a Third Party License Agreement(s), the royalties due to Licensor under Section 5.4 (as adjusted (where applicable) pursuant to Section 5.5(b)) with respect to such Calendar Quarter shall be reduced, on a Licensed Product-by-Licensed Product and country-by-country basis, by [**] percent ([**]%) of any amounts paid by Merck, its Affiliates or Sublicensees pursuant to such Third Party License Agreement(s) with respect to a given Calendar Quarter, to the extent allocable to the applicable Licensed Product in the applicable country. To the extent any such Third Party License Agreement includes license rights as to which amounts paid are not eligible for offset pursuant to this Section 5.5(a), the aforementioned reduction shall be made by Merck in good faith using an allocation method reasonably determined by Merck. The foregoing provisions of this Section 5.5(a) notwithstanding, in no event shall the royalty payments with respect to a Licensed Product in a country due to Licensor by Merck at the then-applicable royalty rates be reduced by more than [**] percent ([**]%) as a result of the operation of this Section 5.5(a). In the event that Merck is not able to take the full amount of its permitted deductions under this Section 5.5(a) with respect to any Licensed Product in a country due to the operation of the [**] percent ([**]%) royalty reduction limitation provided for in this Section 5.5(a) with respect to the Licensed Product in such country (including due to there being no royalty obligations against which Merck can credit amounts paid by Merck, its Affiliates or Sublicensees pursuant to such Third Party License Agreement(s)), Merck shall be entitled to deduct any undeducted excess amounts against royalties due to Licensor under Section 5.4 pertaining to such Licensed Product in such country in subsequent Calendar Quarters until fully

deducted, but the [**] percent ([**]%) royalty reduction limitation shall apply to such subsequent Calendar Quarters.

(b) The royalty rates then in effect set forth in Section 5.4 applicable to the sale of a Licensed Product in a country will be reduced by [**] percent ([**]%) during any portion of the Royalty Term when there is no Valid Claim of a Licensor Patent Covering such Licensed Product in such country.

(c) In the event that in any Calendar Year during the Royalty Term, off-label sales by Licensor, its Affiliates or licensees (or their successors) of products containing [**] in the Field are detected through marketing databases (such as, without limitation IMS Health) reach or exceed the lesser of (i) [**] percent ([**]%) of annual worldwide Net Sales of all Compounds made by Merck, its Affiliates or Sublicensees, or (ii) USD [**] ($[**]) (where such off-label sales in the Field are calculated by reference to Merck's relevant average selling price(s), adjusted for different dosages), then the royalty rates then in effect under Section 5.4 (as adjusted (where applicable) pursuant to Sections 5.5(a) and 5.5(b)) applicable to the sale of all Licensed Product will be reduced by [**] percent ([**]%) of the otherwise applicable royalty rate during any such Calendar Year. Should the effect of off-label sales of [**] in the Field thereafter fall below both of the thresholds described in the sentence before, then the royalty rate in effect under Section 5.4 (as adjusted (where applicable) pursuant to Sections 5.5(a) and 5.5(b)) shall be reinstated.

(d) If Merck, its Affiliates or Sublicensees incur any liability, damage, loss, cost or expense (including reasonable attorney fees) arising out of Third Party claims or suits in connection with Licensed Product(s) related to the matters set forth in [**], then Merck shall be entitled to deduct [**] percent ([**]%) of such amounts from the royalties otherwise due to Licensor under Section 5.4 (as adjusted (where applicable) pursuant to Sections 5.5(a), 5.5(b) and 5.5(c)). For the avoidance of doubt, such amounts shall be deducted from royalty payments for worldwide Net Sales achieved, even if such Third Party claims relate to certain countries in the world only. If the royalties otherwise due to Licensor in any Calendar Quarter are less than [**] percent ([**]%) of the liability, damage, loss, cost or expense (including reasonable attorney fees) that Merck is permitted to deduct pursuant to the immediately preceding sentence, Merck shall be entitled to carry forward any undeducted excess for deduction against royalties otherwise payable to Licensor in future periods. Each Party shall (a) promptly notify the other Party as soon as it becomes aware of a claim or suit for which the foregoing deduction applies and (b) cooperate with the other Party in the defense, settlement or compromise of such claim or suit. In no event, however, shall Merck settle or compromise any such claim or suit in a manner that admits any liability for the subject matter of such claim or suit or involves making any payment to a Third Party in consideration for such settlement or compromise without the prior written consent of Licensor, not to be unreasonably withheld, delayed or conditioned.

5.6 **Timing of Payment.** Royalties payable under Section 5.4 shall accrue at the time the invoice for the sale of the Licensed Product is delivered and royalty obligations that have accrued during a particular Calendar Quarter shall be paid, on a Calendar Quarter basis, within sixty (60) days after the end of the Calendar Quarter during which the royalty obligation accrued.

5.7 **Mode of Payment, Currency and Invoicing.** All payments to Licensor hereunder shall be made by deposit of Euros in the requisite amount to such bank account as Licensor may from time to time designate by written notice to Merck. With respect to Net Sales not denominated in Euros, Merck shall convert each applicable monthly sales in foreign currency into Euro by using the then current and standard exchange rate methodology applied by Merck in its external reporting. For accounting and documentation purposes, Licensor shall provide to Merck an invoice for the upfront and milestone payments that are payable. The Parties may vary the method of payment set forth herein at any time upon mutual agreement, and any change shall be consistent with the local Law at the place of payment or remittance. Merck agrees that Merck and its Affiliates shall make all of their payments under this Agreement from Germany; and in case that payments under this Agreement are to be made by an assignee of Merck, then Licensor and Merck shall agree in good faith on a mode of payment by such assignee that does not disadvantage Licensor if compared with a situation in which Licensor and Merck would benefit from the application of the Double Taxation Convention existing between Germany and the United States of America, as such convention is in effect at the time of assignment and thereafter.

5.8 **Royalty Reports and Records Retention.** Within sixty (60) days after the end of each Calendar Quarter during which the Licensed Products have been sold, Merck shall deliver to Licensor, together with the applicable royalty payment due, a written report, on a Licensed Product-by-Licensed Product and a country-by-country basis showing (a) the Net Sales in Euros of each Licensed Product by type of Licensed Product and country in the Territory, (b) the applicable royalty rates for such Licensed Product, (c) the exchange rates used in calculating any of the foregoing, and (f) a calculation of the amount of royalty due Licensor in Euros. In addition to the foregoing, within sixty (60) days after the end of each Calendar Year during which Licensed Products have been sold, Merck shall deliver to Licensor a written report showing the gross sales in Euros of each Licensed Product by type of Licensed Product and country for the United States, the Major EU Countries and Japan. Such reports shall be deemed "Confidential Information" of Merck subject to the obligations of Article 7 of this Agreement. For the current Calendar Year and the [**] most recently completed Calendar Years, Merck shall keep (and shall ensure that its Affiliates and Sublicensees shall keep) complete and accurate records of such sales in sufficient detail to confirm the accuracy of the gross sales, Net Sales, royalty and currency conversion calculations hereunder.

5.9 **Legal Restrictions.** If at any time legal restrictions prevent the remittance by Merck of all or any part of royalties on Net Sales in any country, Merck shall have the right and option to make such payment by depositing the amount thereof in local currency to an account in the name of Licensor in a bank or other depository selected by Licensor in such country.

5.10 **Late Payments.** All payments under this Agreement shall earn interest from the date due until paid at a per annum rate equal to the lesser of (a) the rate provided for at the relevant time pursuant to the Late Payments of Commercial Debt (Interest) Act of 1998, and (b) [**] percent ([**]%). Interest will be calculated on a 365/360 basis.

5.11 **Audits.**

(a) During the Term and for one Calendar Year thereafter, upon the written request of Licensor, and not more than [**] in each Calendar Year, Merck shall permit, and shall cause its Affiliates and Sublicensees to permit, an independent accounting firm of internationally recognized standing selected by Licensor, and reasonably acceptable to Merck or such Affiliate or Sublicensee, to have access to and to review, during normal business hours upon reasonable prior written notice, the applicable records of Merck and its Affiliates and Sublicensees to verify the accuracy of the royalty reports, any deductions taken in calculating Net Sales, and payments under this Article 5. Such review may cover the records for sales made in the current Calendar Year and any Calendar Year ending not more than [**] prior to the date of such request. The accounting firm shall disclose to Licensor and Merck only whether the royalty reports are correct or incorrect and the specific details concerning any discrepancies. No other information shall be provided to Licensor.

(b) If such accounting firm concludes that additional royalties were owed during such period, Merck shall pay the additional amounts, together with interest accrued thereon in accordance with Section 5.10, within thirty (30) days after the date Licensor delivers to Merck such accounting firm's written report. If such accounting firm concludes that an overpayment was made, such overpayment shall be fully creditable against amounts payable in subsequent payment periods. Licensor shall pay for the cost of such audit, unless the underpayment of royalties is greater than [**] percent ([**]%) of the amount due for the applicable period, in which case Merck shall pay the cost of such audit.

(c) Each Party shall treat all information that it receives under this Section 5.11 in accordance with the confidentiality provisions of Article 7 of this Agreement, and shall cause its accounting firm to enter into a written confidentiality agreement with the other Party having terms substantially the same as the confidentiality obligations set forth in this Agreement and obligating such firm to retain all such financial information in confidence pursuant to such confidentiality agreement, except to the extent necessary for such Party to enforce its rights under this Agreement.

5.12 **Compulsory License.** In the event that Licensor or Merck receives a request for a Compulsory License anywhere in the world, it shall promptly notify the other Party. If any Third Party obtains a Compulsory License in the Field in the Territory, then Licensor or Merck (whoever has first notice) shall promptly notify the other Party. For purposes of calculating the royalties due Licensor under Section 5.4 with respect to sales of the Licensed Product by any compulsory licensee, Merck shall pay Licensor the lesser of (a) the amounts otherwise due to Licensor pursuant to Section 5.4, and (b) [**] percent ([**]%) of any amounts payable (including up-front license fees, milestones and other non-royalty consideration as well as royalty consideration) by such compulsory licensee to Merck.

5.13 **Taxes**.

(a) Licensor shall be responsible for the payment of any and all taxes levied on account of royalties and other payments paid to Licensor by Merck or its Affiliates or Sublicensees under this Agreement, other than any value added tax or similar tax. If applicable Law requires that taxes be deducted and withheld from royalties or other payments paid under this Agreement, Merck shall (a) deduct those taxes from the payment; (b) pay the taxes to the proper Governmental Body; (c) send evidence of the obligation together with proof of payment to Licensor within one hundred (100) days following such payment, such evidence and proof to be reasonably satisfactory to Licensor; (d) remit to Licensor the net amount, after deductions or withholding made under this Section 5.13(a), and (e) cooperate with Licensor in any way reasonably requested by Licensor, to obtain available reductions, credits or refunds of such taxes Notwithstanding the foregoing, if Licensor shall provide Merck with a written confirmation from the competent U.S. tax authority that Licensor has its tax residence in the United States and any other documents necessary for the application of the tax rate set forth in the Double Taxation Convention existing between Germany and the United States of America. Merck shall not withhold any German tax from royalties paid or payments for rights to Licensor under this Agreement so long as the exemption from withholding tax set forth in such Double Taxation Convention remains in effect. For purposes hereof, the Parties assume that Licensor shall be the beneficial owner of both the royalty payments and the payments for the rights.

(b) It is understood and agreed between the Parties that any payments described in this Agreement are expressed exclusive of any value added tax or similar tax imposed upon such payments. Value added tax shall be added to all such payments where applicable.

Article 6

Inventions and Patents

6.1 Certification Under Drug Price Competition and Patent Restoration Act. Each Party shall immediately give written notice to the other Party of any certification of which they become aware filed pursuant to 21 U.S.C. Section 355(b)(2)(A) (or any amendment or successor statute thereto) claiming that any Licensor Patents Covering a Compound, Follow-On Compound or Licensed Product, or the use of each of the foregoing, are invalid or unenforceable, or that infringement will not arise from the manufacture, use or sale of a Licensed Product in or outside the Field by a Third Party.

6.2 Listing of Patents. Merck shall have the sole right to determine which of the Licensor Patents, if any, shall be listed for inclusion in the Approved Drug Products with Therapeutic Equivalence Evaluations pursuant to 21 U.S.C. Section 355, or any successor Law in the United States, together with any comparable Laws in any other country in the Territory.

6.3 Title to Inventions. All inventions having as inventors solely employees or independent contractors of one Party in the course of the Parties' performance under this Agreement and all intellectual property rights therein ("**Sole Inventions**"), shall be the property of such Party. All inventions having as inventors one or more employees or independent

contractors of each of the Parties in the course of the Parties' performance under this Agreement and all intellectual property rights therein ("**Joint Inventions**") shall be jointly owned both Parties.

6.4 Further Assurances. Licensor shall require all of its employees, and use Commercially Reasonable Efforts to require its contractors and agents, and any Affiliates and Third Parties working on its behalf under this Agreement (and their respective employees, contractors and agents), to assign to Licensor any Licensor Technology.

6.5 Patent Prosecution and Maintenance.

(a) Merck. Merck shall have the right to file, prosecute and maintain Merck Patents. Merck shall bear all costs and expenses of filing, prosecuting and maintaining Merck Patents in the Territory.

(b) Licensor Patents. Licensor shall have the first right to file, prosecute and maintain Licensor Patents in the Territory; provided that Licensor shall file, prosecute and maintain Licensor Patents in the countries listed in the patent country list attached hereto as Schedule 6.5 (the "**Patent Countries**"), it being acknowledged that with respect to Licensor Patents filed prior to the Signing Date it may no longer be possible to file patent applications in certain of the Patent Countries. Prosecution in the Patent Countries shall be at Licensor's sole discretion and control. Licensor shall bear all costs and expenses of filing, prosecuting and maintaining Licensor Patents in the Patent Countries. Licensor shall update Merck as to the course of filing and prosecution of Licensor Patents or related proceedings (e.g. interferences, oppositions, reexaminations, reissues, revocations or nullifications) in the Patent Countries from time to time. Merck may provide comments on such filings and proceedings and Licensor may take into consideration the advice and recommendations of Merck. At Licensor's request, Merck will provide Licensor with reasonable assistance in prosecuting Licensor Patents to the extent possible, including providing such data in Merck's Control that is, in Licensor's reasonable judgment, needed to support the prosecution of a Licensor Patent; provided, however, that Licensor shall reimburse Merck for Merck's Out-of-Pocket Expenses incurred in providing such assistance. Licensor shall provide Merck with a routine annual update of the complete patent status of the Licensor Patents in all countries in the Territory.

(c) **Joint Patents**. Licensor and Merck will promptly disclose all Joint Inventions to each other. Each Party shall execute such further assignments, documents and other instruments as may be necessary or desirable to fully and completely assign all Joint Inventions to Licensor and Merck and will assist each other in applying for, obtaining and enforcing patents with respect to any Joint Inventions, including equal sharing of the expenses associated therewith. Questions of inventorship shall be resolved in accordance with United States patent laws. In the event that one of the Parties is not interested in filing, prosecuting or maintaining a patent or patent application covering a Joint Invention in any particular country, then such Party agrees to transfer its interest in such patent right or patent application to the other Party, and the other Party shall have the right to assume the filing, prosecuting or maintenance of such patent or patent application in such country, at such other Party's expense. In the event of a dispute regarding such questions, if the Parties are unable to resolve the dispute, mutually acceptable independent United States patent counsel not regularly employed or otherwise

associated with either Party shall resolve such dispute and the parties shall be bound by the decision of such counsel. The Parties shall reasonably discuss the disposition of Joint Patents that disclose or claim inventions with applicability outside the Field.

(d) **Election Not to File and Prosecute Licensor Patents Not Included in Patent Countries List.** Licensor and Merck recognize that with regard to certain patents and patent applications for Compounds and Compound Improvements (but not for Follow-On Compounds, Follow-On Compound Improvements, or patent applications or patents filed on Joint Inventions) included in Licensor Patents, if Licensor elects to discontinue prosecution or maintenance, [**] has the right, in its sole discretion, to prosecute and maintain such patents or patent applications. Subject to Licensor's obligations under Section 6.5(b) with respect to Licensor Patents in the Patent Countries, in the event Licensor chooses not to file, continue prosecution or maintain a patent or patent application within the Licensor Patents, except in the case of filing a related continuation application, and [**] chooses not to continue such prosecution or maintenance for Compounds and Compound Improvements (but not for Follow-On Compounds, Follow-On Compound Improvements, or patent applications or patents filed on Joint Inventions), Licensor shall promptly notify Merck in writing, and Merck shall have the right, but not the obligation, to pursue the filing or support the continued prosecution or maintenance of such patent or patent application in the corresponding country. If Merck does elect to take such action in a country in the Territory, then it shall promptly notify Licensor in writing of such election, and Licensor shall reasonably cooperate with Merck in this regard. Merck shall update Licensor as to the course of filing and prosecution of Licensor Patents or related proceedings (e.g. interferences, oppositions, reexaminations, reissues, revocations or nullifications) in such countries from time to time. If Merck elects to continue such prosecution or maintenance of such Licensor Patents, such patents or patent applications shall no longer constitute Licensor Patents for purposes of determining Merck's royalty obligations under this Agreement.

(e) Patent Term Extensions. Licensor agrees to use reasonable effort to seek patent term extensions wherever available for Licensor Patents that Cover a Licensed Product. The Parties agree to cooperate and to take reasonable actions to maximize the protections available under the provisions of 35 U.S.C. §156 for U.S. patents/patent applications. Merck shall provide Licensor with all relevant information, documentation and assistance in this respect. Any such assistance, supply of information and consultation shall be provided promptly and in a manner that will ensure that all patent term extensions that are sought for Licensed Products may be obtained wherever legally permissible, and to the maximum extent available.

6.6 Enforcement of Patents.

(a) Notice. If either Party believes that a Licensor Patent is being infringed by a Third Party, the Party possessing such knowledge or belief shall notify the other Party and provide it with details of such infringement that are known by such Party.

(b) Right to bring an Action. Licensor shall have the first right to attempt to resolve such infringement in and outside the Field, including by filing an infringement suit or taking other similar action (each, an "**Action**") and to compromise or settle such infringement. If Licensor does not intend to prosecute or defend an Action, Licensor shall promptly inform

Merck. The Parties recognize that [**] has certain rights to initiate, prosecute and defend against an infringement of the Licensor Patents. If both Licensor and [**] decide not to initiate, prosecute or defend against an infringement of the Licensor Patents inside or outside the Field, then Licensor shall promptly notify Merck and Merck, at its sole expense, shall have the right to initiate or prosecute such infringement. Licensor's notice to Merck shall not be unreasonably delayed and shall be provided as far in advance of any filing deadline as possible. Merck shall promptly inform Licensor in writing of its decision on initiating or prosecuting such infringement. In the event Merck decides not to initiate or prosecute such infringement, such rights shall revert to Licensor. In any Action initiated or prosecuted by Merck, Licensor shall have the right to control the defense of all claims for revocation, of invalidity and/or of unenforceability of Licensor Patents. The Party initiating such Action shall have the sole and exclusive right to select counsel for any suit initiated by it pursuant to this Section 6.6(b). For any case that Merck initiates, prosecutes or defends, (i) Licensor and [**], at their expense, shall have the right to be represented by counsel of their choosing, and (ii) Merck shall reasonably consider the rights and interests of Licensor.

(c) Costs of an Action. The Party taking an Action under Section 6.6(b) shall pay all costs associated with such Action, other than (subject to Section 6.6(e)) the expenses of the other Party if the other Party elects to join such Action. Each Party shall have the right to be represented by its own counsel in an Action relating to a Licensor Patent taken by the other Party, at its own expense.

(d) Settlement. In settling an Action, each Party shall have a reasonable opportunity for meaningful participation in the decision making and in settling the Action. When one Party's settlement of an Action will obligate the other Party to pay any amount, then the Party settling the Action shall seek and obtain the other Party's written consent prior to settling such Action. In any settlement, each Party shall reasonably consider the rights and interests of the other Party.

(e) Reasonable Assistance. The Party not enforcing or defending Licensor Patents shall (i) provide reasonable assistance to the other Party, including providing access to relevant documents and other evidence and making its employees available, subject to the other Party's reimbursement of any Out-Of-Pocket expenses incurred by the non-enforcing or non-defending Party in providing such assistance; and (ii) join the Action as a named party if it is required to file or maintain the Action.

(f) Distribution of Amounts Recovered. Any amounts recovered by the Party taking an Action pursuant to this Section 6.6, whether by settlement or judgment, shall be allocated in the following order: (i) to reimburse the Party initiating such Action for any documented, Out-of-Pocket Expenses incurred in litigating the Action; (ii) to reimburse the Party not initiating such Action, for any documented, Out-of-Pocket Expenses incurred in litigating such Action, and (iii) the remaining amount of such recovery shall be allocated between the Parties [**].

6.7 Third Party Actions Claiming Infringement.

(a) Notice. If a Party is notified of any action by a Third Party against either Party that claims that the Compound or Follow-on Compound, or its use, Development, manufacture or sale in the Field infringes such Third Party's intellectual property rights (each, a "**Third Party Action**"), such Party shall promptly notify the other Party in writing of such action.

(b) Consultation. Following delivery of the written notice of the Third Party Action, the Parties shall consult with each other on all material aspects of the defense. Each Party shall have a reasonable opportunity for meaningful participation in decision-making and formulation of defense strategy. The Parties shall reasonably cooperate with each other in all such actions or proceedings.

Article 7

CONFIDENTIALITY

7.1 **Confidentiality Obligations**. Each Party agrees that, for the Term and for [**] years thereafter, such Party shall, and shall ensure that its officers, directors, employees and agents shall, keep completely confidential and not publish or otherwise disclose and not use for any purpose except as expressly permitted hereunder any Confidential Information disclosed to it by the other Party pursuant to this Agreement. The foregoing obligations shall not apply to any Confidential Information disclosed by a Party hereunder to the extent that the receiving Party can demonstrate that such Confidential Information:

(a) was already known to the receiving Party or its Affiliates, other than under an obligation of confidentiality, at the time of disclosure;

(b) was generally available to the public or otherwise part of the public domain at the time of its disclosure to the receiving Party;

(c) became generally available to the public or otherwise part of the public domain after its disclosure and other than through any act or omission of the receiving Party in breach of this Agreement;

(d) was subsequently lawfully disclosed to the receiving Party or its Affiliates by a Third Party without an obligation of confidentiality other than in contravention of a confidentiality obligation of such Third Party to the disclosing Party; or

(e) was developed or discovered by employees or agents of the receiving Party or its Affiliates who had no access to the Confidential Information of the disclosing Party.

Notwithstanding the above obligations of confidentiality and non-use, a Party may disclose information to the extent that such disclosure is reasonably necessary in connection with:

(i) filing or prosecuting patent applications, subject to the terms of Section 6.3;

(ii) prosecuting or defending litigation;

(iii) conducting pre-clinical studies or Clinical Trials;

(iv) seeking Regulatory Approval of the Licensed Product in the Field;

(v) seeking advice from business, legal and financial advisors, on the condition that such business, legal and financial advisors agree to be bound by confidentiality and non-use obligations at least as strict as those contained in this Agreement; or

(vi) complying with applicable Law, including securities Law and the rules of any securities exchange or market on which a Party's securities are listed or traded.

In making any disclosures set forth in clauses (i) through (vi) above, the disclosing Party shall, where reasonably practicable, give such advance notice to the other Party of such disclosure requirement as is reasonable under the circumstances and will use its reasonable efforts to cooperate with the other Party in order to secure confidential treatment of such Confidential Information required to be disclosed. In addition, in connection with any permitted filing by either Party of this Agreement with any Governmental Body, including but not limited to the U.S. Securities and Exchange Commission, the filing Party shall endeavor to obtain confidential treatment of economic, trade secret information and such other information as may be requested by the other Party, and shall provide the other Party with the proposed confidential treatment request with reasonable time for such other Party to provide comments, and shall include in such confidential treatment request all reasonable comments of the other Party.

7.2 **Publications**. Merck and Licensor each acknowledge the other Party's interest in publishing the results of its research in order to obtain recognition within the scientific community and to advance the state of scientific knowledge. Each Party also recognizes the mutual interest in obtaining valid patent protection and in protecting business interests and trade secret information. Consequently, except for disclosures permitted pursuant to Section 7.1, either Party, its employees or consultants wishing to make a publication regarding a Compound, Follow-On Compound or Licensed Product shall comply with the provisions set forth in this Section 7.2.

(a) Merck shall have the right to publish the results of its research with respect to Compounds, Follow-On Compounds and Licensed Products inside the Field, without notice to, or the prior consent of, Licensor.

(b) Licensor shall have the right to publish the results of its research with the Compounds outside the Field, without notice to, or the prior consent of, Merck.

(c) Licensor shall have the right to publish the results of Clinical Trials Initiated by or on behalf of Licensor prior to the Signing Date, provided that Licensor delivers to Merck a copy of the proposed written publication or an outline of an oral disclosure at least thirty (30) days prior to submission for publication or presentation. Merck shall have the right (i) to

propose modifications to the publication or presentation for patent reasons, trade secret reasons or business reasons or (ii) to request a reasonable delay in publication or presentation in order to protect patentable information. If Merck requests a delay, Licensor shall delay submission or presentation for a period of up to an additional forty-five (45) days to enable patent applications protecting Licensor's rights in such information to be filed in accordance with Article 6. Upon expiration of such additional forty-five (45) day period, Licensor shall be free to proceed with the publication or presentation. If Merck requests modifications to the publication or presentation, Licensor shall edit such publication to prevent disclosure of trade secret or proprietary business information prior to submission of the publication or presentation.

(d) The foregoing provisions of this Section 7.2 notwithstanding, a Party may disclose scientific information or results regarding a Compound, Follow-On Compound or Licensed Product to the extent necessary to comply with applicable Law, including securities Laws and the rules of any securities exchange or market on which such Party's securities are listed or traded.

7.3 **Press Releases and Disclosure**. Upon execution of this Agreement, each Party shall have the right to issue a press release in the form attached hereto as Schedule 7.3.1 or Schedule 7.3.2, as applicable. Subject to the foregoing sentence, no disclosure of the existence, or the terms, of this Agreement may be made by either Party, and neither Party shall use the name, trademark, trade name or logo of the other Party, its Affiliates or their respective employees in any publicity, promotion, news release or disclosure relating to this Agreement or its subject matter, without the prior express written permission of the other Party, except as may be required by Law; provided that either Party may disclose the terms of this Agreement to its business, legal and financial advisors and to any Third Party that has provided such Party with a bona fide written offer to purchase all or substantially all of the assets of such Party or to acquire fifty percent (50%) or more of the voting equity securities or management control of such Party, on the condition that such Third Party and its attorneys, independent accountants and financial advisors agree to be bound by confidentiality and non-use obligations at least as strict as those contained in this Agreement. With respect to the achievement of milestones set forth in Sections 5.2 and 5.3, Licensor may issue a press release regarding any such achievement, provided that Merck is given five (5) business days to review and comment on the proposed press release or public disclosure.

Article 8

REPRESENTATIONS, WARRANTIES AND COVENANTS

8.1 **Representations and Warranties**. Each Party represents and warrants to the other Party that, as of the Signing Date:

(a) such Party is duly organized and validly existing under the Laws of the jurisdiction of its incorporation or organization;

(b) such Party has taken all action necessary to authorize the execution and delivery of this Agreement and the performance of its obligations under this Agreement;

(c) this Agreement is a legal and valid obligation of such Party, binding upon such Party and enforceable against such Party in accordance with the terms of this Agreement, except as enforcement may be limited by applicable bankruptcy, fraudulent conveyance, insolvency, reorganization, moratorium and other Laws relating to or affecting creditors' rights generally and by general equitable principles. The execution, delivery and performance of this Agreement by such Party does not conflict with, breach or create in any Third Party the right to accelerate, terminate or modify any agreement or instrument to which such Party is a party or by which such Party is bound, and does not violate any Law of any Governmental Body having authority over such Party;

(d) such Party has all right, power and authority to enter into this Agreement, to perform its obligations under this Agreement; and

(e) no consent by any Third Party or Governmental Body (subject to obtaining any necessary HSR Clearance) is required with respect to the execution and delivery of this Agreement by such Party or the consummation by such Party of the transactions contemplated hereby.

8.2 **Additional Representations and Warranties of Licensor**. Licensor represents and warrants to Merck, as of the Signing Date, that:

(a) [**];

(b) to the Knowledge of Licensor, there is no unauthorized use, infringement or misappropriation of any of Licensor Technology by any employee or former employee of Licensor, or any other Third Party;

(c) to the Knowledge of Licensor, the Licensor Patents are subsisting and are not the subject of any litigation procedure, discovery process, interference, reissue, reexamination, opposition, appeal proceedings or any other legal dispute;

(d) The Licensor Patents constitute all Patent Rights Controlled by Licensor as of the Signing Date that are necessary or useful for the research, Development, manufacture, use or Commercialization of Compounds and Follow-On Compounds in the Field;

(e) The Compounds provided hereunder contain the molecular structures described in Section 1.11;

(f) Licensor has not licensed to a Third Party the right to perform research, Develop, manufacture, use or Commercialize (i) a Compound for use in the Field, or (ii) a Follow-On Compound for use in or outside the Field;

(g) Licensor has not granted rights to Compounds or Follow-On Compounds in or outside the Field to (i) [**], or (ii) [**];

(h) the Licensor Know-How constitutes all Know-How Controlled by Licensor as of the Signing Date that is necessary for the research, Development, manufacture, use or Commercialization of the Compounds and Follow-On Compounds in the Field;

(i) to Licensor's Knowledge, the exercise of the licenses granted to Merck with respect to the Compounds and Follow-On Compounds in the Field will not infringe any intellectual property rights owned or possessed by any Third Party Covering the composition of matter or method of use in the Field of such Compound or Follow-On Compound;

(j) the Compounds and Follow-On Compounds can be manufactured without infringing any Third Party manufacturing process intellectual property rights;

(k) it has the full right to provide the Licensor Materials to Merck and to transfer to Merck all right, title and interest in and to the Licensor Material to be provided to Merck pursuant to this Agreement;

(l) all employees of Licensor who have performed any activities on its behalf in connection with research regarding the Compounds and the Follow-On Compounds, and all other inventors of Licensor Patents, have assigned to Licensor the whole of their rights in any intellectual property made, discovered or developed by them as a result of such research, and no Third Party has any rights to any such intellectual property in the Field; and

(m) to its Knowledge, all tangible information and data provided by or on behalf of Licensor to Merck on or before the Signing Date in contemplation of this Agreement was and is true, accurate and complete in all material respects, and to its Knowledge, Licensor has not failed to disclose, or cause to be disclosed, any Licensor Know-How that would cause the information and data that has been disclosed to be misleading in any material respect.

8.3 **No Warranty**. EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER PARTY HERETO MAKES ANY REPRESENTATION AND EXTENDS NO WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED. IN PARTICULAR, BUT WITHOUT LIMITATION, LICENSOR MAKES NO REPRESENTATION AND EXTENDS NO WARRANTY CONCERNING WHETHER ANY OF THE COMPOUNDS, FOLLOW-ON COMPOUNDS OR LICENSED PRODUCTS ARE FIT FOR ANY PARTICULAR PURPOSE OR SAFE FOR HUMAN CONSUMPTION, OR THAT THE USE OF THE LICENSOR TECHNOLOGY WILL NOT INFRINGE OR VIOLATE ANY PATENT OR OTHER PROPRIETARY RIGHTS OF ANY THIRD PARTY.

Article 9

INDEMNIFICATION AND INSURANCE

9.1 **Indemnification by Merck**. Merck shall indemnify, defend and hold Licensor and its Affiliates and each of their respective employees, officers, directors and agents (the "**Licensor Indemnitees**") harmless from and against any and all liability, damage, loss, cost or expense (including reasonable attorneys' fees) to the extent arising out of Third Party claims or suits related to (a) the Development, manufacture, use or Commercialization of a Compound, Follow-On Compound or Licensed Product by or on behalf of Merck, its Affiliates or Sublicensees, (b) the use, handling or storage of any Licensor Materials by or on behalf of Merck, its Affiliates or Sublicensees, (c) Merck's performance of its obligations under this Agreement, or (d) breach by Merck of its representations, warranties or covenants set forth in

this Agreement; provided, however, that Merck's obligations pursuant to this Section 9.1 shall not apply to the extent such claims or suits (i) result from the negligence or willful misconduct of any of the Licensor Indemnitees, or (ii) arise out of breach by Licensor of its representations, warranties or covenants set forth in this Agreement.

9.2 **Indemnification by Licensor**. Licensor shall indemnify, defend and hold Merck and its Affiliates and each of their respective agents, employees, officers and directors (the "**Merck Indemnitees**") harmless from and against any and all liability, damage, loss, cost or expense (including reasonable attorney's fees) to the extent arising out of Third Party claims or suits related to (a) Licensor's performance of the On-Going Trials, whether prior or subsequent to the Effective Date; (b) the Development, manufacture, use or Commercialization of Compounds or Follow-On Compounds by or on behalf of Licensor, its Affiliates or licensees, or (c) Licensor's performance of its obligations under this Agreement; (d) breach by Licensor of its representations, warranties or covenants set forth in this Agreement; or (e) the matters set forth in [**]; provided, however, that Licensor's obligations pursuant to this Section 9.2 shall not apply to the extent such claims or suits (i) result from the negligence or willful misconduct of any of the Merck Indemnitees or (ii) arise out of a breach by Merck of its representations, warranties or covenants set forth in this Agreement.

9.3 **No Consequential Damages**. IN NO EVENT SHALL EITHER PARTY OR ANY OF ITS AFFILIATES BE LIABLE TO THE OTHER PARTY OR ANY OF ITS AFFILIATES OR THEIR RESPECTIVE EMPLOYEES, OFFICERS, DIRECTORS OR AGENTS FOR SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, WHETHER IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE ARISING OUT OF OR RELATING TO THIS AGREEMENT OR ANY BREACH THEREOF; PROVIDED HOWEVER THAT THIS LIMITATION SHALL NOT LIMIT THE INDEMNIFICATION OBLIGATIONS OF THE PARTIES WITH RESPECT TO THIRD PARTY CLAIMS.

9.4 **Notification of Claims; Conditions to Indemnification Obligations**. As a condition to a Party's right to receive indemnification under this Article 9, it shall (a) promptly notify the other Party as soon as it becomes aware of a claim or suit for which indemnification may be sought pursuant hereto; provided that the failure or delay to so notify the indemnifying Party shall not relieve the indemnifying Party of any obligation or liability that it may have to the Indemnified Party, except to the extent that the indemnifying Party demonstrates that its ability to defend or resolve such claim is adversely affected thereby, (b) cooperate, and cause the individual indemnitees to cooperate, with the indemnifying Party in the defense, settlement or compromise of such claim or suit, and (c) permit the indemnifying Party to control the defense, settlement or compromise of such claim or suit, including the right to select defense counsel. In no event, however, may the indemnifying Party compromise or settle any claim or suit in a manner which admits fault or negligence on the part of the indemnified Party or any indemnitee without the prior written consent of the indemnified Party, such consent not to be unreasonably withheld, delayed or conditioned, it being understood that it would be reasonable for an indemnified Party to withhold such consent to any proposed settlement that leads to liability or imposes any financial obligation on the indemnified Party or any indemnitee for which such indemnified Party (or any indemnitee) is not entitled to indemnification hereunder, imposes any other obligation or restriction on the indemnified Party (or any indemnitee), or which includes an

admission of wrongdoing or responsibility for the claim by the indemnified Party (or indemnitee). The indemnifying Party shall have no liability under this Article 9 with respect to claims or suits settled or compromised without its prior written consent.

9.5 **Insurance**. During the Term, each Party shall obtain and maintain, at its sole cost and expense, product liability insurance (including any self-insured arrangements) in amounts, that are reasonable and customary in the United States pharmaceutical and biotechnology industry for companies engaged in comparable activities. It is understood and agreed that this insurance shall not be construed to limit either Party's liability with respect to its indemnification obligations hereunder. Each Party will, except to the extent self insured, provide to the other Party upon request a certificate evidencing the insurance such Party is required to obtain and keep in force under this Section 9.5. Each Party will notify the other Party at least thirty (30) days' prior to the expiration or cancellation of such insurance, or any reduction in coverage thereunder.

Article 10

TERM AND TERMINATION

10.1 **Term and Expiration**. The term of this Agreement (the "**Term**") shall commence on the Effective Date and, unless earlier terminated as provided in this Article 10 (the date of any such termination, the "**Termination Date**"), shall continue in full force and effect, on a country-by-country and Licensed Product-by-Licensed Product basis until there is no remaining royalty or other payment obligation in such country with respect to such Licensed Product, at which time this Agreement shall expire in its entirety with respect to such Licensed Product in such country.

10.2 **Termination of the Agreement by Merck for convenience**. During the Term, Merck may, at its convenience, terminate this Agreement in its entirety upon ninety (90) days' prior written notice to Licensor.

10.3 **Termination upon Material Breach**.

(a) If a Party breaches any of its material obligations under the Agreement, the Party not in default may give to the breaching Party a written notice specifying the nature of the default, requiring it to cure such breach, and stating its intention to terminate this Agreement if such breach is not cured within [**] (or, in the case of a payment breach, within [**])). If such breach is not cured within [**] (or [**] in the case of a payment breach) after the receipt of such notice, the Party not in default shall be entitled to terminate this Agreement by written notice to the other Party.

(b) In the event Merck fails to fulfill its obligations under Section 3.9 (and does not cure such failure as provided in Section 10.3(a)), Licensor's sole and exclusive remedy shall be to terminate this Agreement as provided in Section 10.3(a).

(c) Any dispute regarding an alleged material breach of this Agreement shall be resolved in accordance with Article 11 hereof.

(d) If Merck has the right to terminate this Agreement under Section 10.3(a) and it has been determined in a final judgment from which no appeal can be taken, or that is unappealed within the time allowed for appeal, that Licensor has breached a material obligation of this Agreement, Merck may elect not to terminate this Agreement, and Merck may (i) offset against its financial obligations hereunder the amount of any damages resulting from such material breach by Licensor that are awarded to Merck pursuant to such final judgment, and (ii) in the case of Licensor's material breach of its obligations under Section 2.6, reduce by [**] percent ([**]%) any milestone and royalty payments that may become due and owing.

10.4 **Effects of termination.**

(a) **Survival**.

(i) Without limiting the foregoing, Articles 1, 9 and 10, and Sections 5.8, 5.9, 5.10, 5.11, 5.12, 5.13, 7.1, 7.3 and 13.11 hereof shall survive the expiration or termination of this Agreement for any reason.

(ii) Termination of this Agreement shall not relieve the Parties of any liability that accrued hereunder prior to the effective date of such termination. In addition, any milestone payments for milestone events set forth in Section 5.2 and accrued prior to the effective date of any termination of this Agreement, but not paid prior to the effective date of termination, shall be due and payable by Merck on the effective date of termination, whether or not such termination occurs prior to [**] months after the Effective Date. In addition, subject to Section 10.3(b), termination of this Agreement shall not preclude either Party from pursuing all rights and remedies it may have hereunder or at Law or in equity with respect to any breach of this Agreement nor prejudice either Party's right to obtain performance of any obligation.

(b) **Expiration of Royalty Term.** Upon expiration of the Royalty Term with respect to any Licensed Product, then as of the effective date of such expiration and on a Licensed Product-by-Licensed Product and a country-by-country basis, the license from Licensor to Merck under Section 2.1 shall convert to a fully paid, royalty free, irrevocable, perpetual,

exclusive, sublicensable license under the Licensor Technology to make, have made, use, import, export, offer for sale and sell such Licensed Product in the Field in the Territory.

(c) **Other Effects of Termination.**

Upon termination of this Agreement (i) pursuant to Section 10.2 or 10.3 by Merck (excluding, for the avoidance of doubt, any election by Merck under Section 10.3(d) not to terminate this Agreement), or (ii) pursuant to Section 10.3 by Licensor, provided that in the event Merck disputes any such termination by Licensor, the following shall only apply from and after such time as such termination has been upheld in a final judgment from which no appeal can be taken, or that is unappealed within the time allowed for appeal, or such time as Merck is no longer disputing such termination:

(1) all licenses granted to Merck under Section 2.1 shall terminate;

(2) Merck, its Affiliates and Sublicensees shall, upon written request by Licensor, transfer to Licensor all regulatory documentation, applications for Regulatory Approval and Regulatory Approvals prepared or obtained by or on behalf of Merck, its Affiliates or Sublicensees prior to the date of such termination, to the extent related to Licensed Products and transferable, and Licensor shall reimburse Merck for its reasonable Out-of-Pocket Expenses incurred with respect to such transfer, and Merck, its Affiliates and Sublicensees shall, in addition, promptly after the receipt of a written request by Licensor, take the additional actions and provide Licensor with the additional information, materials, access and rights set forth on Schedule 10.4(c); and

(3) Merck, its Affiliates and Sublicensees shall promptly return to Licensor all relevant records in its possession or control containing or comprising the Licensor Know-How and the Licensor Materials, or such other Confidential Information of Licensor.

(d) **Licensed Product Inventory.** In the event Licensor terminates this Agreement pursuant to Section 10.3, or Merck terminates this Agreement pursuant to Section 10.2 or 10.3 (excluding, for the avoidance of doubt, any election by Merck under Section 10.3(d) not to terminate this Agreement), Merck and its Affiliates and Sublicensees shall, at Licensor's election, either (i) be entitled, during the [**] month period after the effective date of such termination, to sell any inventory of Licensed Products which remains on hand as of the effective date of termination, so long as Merck pays to Licensor the royalties applicable to said subsequent sales in accordance with the terms and conditions set forth in this Agreement, or (ii) sell to Licensor any inventory of Licensed Products then remaining at a price equal to [**].

10.5 **Bankruptcy**. All rights and licenses granted under or pursuant to this Agreement by Licensor are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of right to "intellectual property" as defined under Section 101 of the U.S. Bankruptcy Code. The Parties agree that Merck, as licensee of such rights under this Agreement, shall retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code. The Parties further agree that, in the event of the commencement of a bankruptcy proceeding by or against Licensor under the U.S. Bankruptcy Code, Merck shall be

entitled to a complete duplicate of (or complete access to, as appropriate) any such intellectual property and all embodiments of such intellectual property, which, if not already in Merck's possession, shall be promptly delivered to it (a) upon any such commencement of a bankruptcy proceeding upon Merck's written request therefor, unless Licensor elects to continue to perform all of its obligations under this Agreement or (b) if not delivered under clause (a), following the rejection of this Agreement by Licensor upon written request therefor by Merck.

Article 11

DISPUTE RESOLUTION

11.1 **Disputes**. The Parties recognize that disputes as to certain matters may from time to time arise during the Term which relate to either Party's rights and/or obligations hereunder (a **"Dispute"**). It is the objective of the Parties to resolve any such Dispute amicably, in an expedient manner, by mutual cooperation and without resort to litigation. In the event that the Parties are unable to resolve any Dispute with thirty (30) days (or fifteen (15) days in the case of a payment Dispute) from the day that one Party had designated the issue as a Dispute in writing to the other Party, then either Party shall have the right to escalate such matter to senior management as set forth in Section 11.2.

11.2 **Escalation to Executive Officers**. Either Party may, by written notice to the other Party, request that any Dispute that remained unresolved for a period of thirty (30) days (or fifteen (15) days in the case of a payment Dispute) as set forth in Section 11.1 be referred to the President of Merck's Pharmaceutical business sector (or his designee) and the Chief Executive Officer of Licensor (or his designee) (the "**Executive Officers**") for resolution, within fifteen (15) days after their first consideration of such Dispute. If the Executive Officers cannot resolve such Dispute within fifteen (15) days after their first consideration of such Dispute, then, at any time after such fifteen (15) days period, either Party may proceed to enforce any and all of its rights with respect to such Dispute. Notwithstanding the foregoing, nothing in this Section 11.2 shall be construed as precluding a Party from bringing an action for interim relief prior to the initiation or completion of the above procedure.

Article 12

HSR MATTERS

12.1 **HSR Filings.** Each of Licensor and Merck shall as promptly as possible, and not later than January 15, 2008 file with the FTC and the Antitrust Division of the DOJ, any HSR Filing required of it under the HSR Act with respect to the transactions contemplated by this Agreement. The Parties shall cooperate with one another to the extent necessary in the preparation of any HSR Filing required to be filed under the HSR Act. Each Party shall be responsible for its own costs, expenses, and filing fees associated with any HSR Filing.

12.2 **HSR Cooperation; Further Assurances**. Licensor and Merck agree, and shall cause each of their respective Affiliates, to cooperate and to use their respective commercially reasonable efforts to obtain any HSR Clearance required for the consummation of the transactions contemplated under this Agreement, to request early termination of the applicable

waiting period under the HSR Act (if HSR Clearance is required) and to respond to any government requests for information under the HSR Act. The Parties will consult and cooperate with one another, and consider in good faith the views of one another, in connection with any analyses, appearances, presentations, memoranda, briefs, arguments, opinions and proposals made or submitted by or on behalf of either Party in connection with proceedings under or relating to the HSR Act.

12.3 **HSR-Related Defined Terms**.

(a) **"DOJ"** means the United States Department of Justice.

(b) **"FTC"** means the United States Federal Trade Commission.

(c) **"HSR Act"** means the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended (15 U.S.C. Sec. 18a), and the rules and regulations promulgated thereunder.

(d) **"HSR Clearance"** means either (a) early termination of the applicable waiting period under the HSR Act with respect to the HSR Filings or (b) expiration of the applicable waiting period under the HSR Act with respect to the HSR Filings.

(e) **"HSR Clearance Date"** means the earlier of (a) the date on which the FTC or DOJ shall notify Licensor and Merck of early termination of the applicable waiting period under the HSR Act or (b) the day after the date on which the applicable waiting period under the HSR Act expires.

(f) **"HSR Filings"** means the filings by Merck and Licensor with the FTC and the Antitrust Division of the DOJ of a Notification and Report Form for Certain Mergers and Acquisitions (as that term is defined in the HSR Act) with respect to the matters set forth in this Agreement, together with all required documentary attachments thereto.

12.4 **Termination Based on Failure to Obtain HSR Clearance**. The Agreement shall immediately terminate in the event that the FTC and/or the DOJ shall obtain a permanent injunction under the HSR Act against Merck and Licensor to enjoin the transactions contemplated by this Agreement. In addition, Licensor shall have the right to terminate this Agreement upon notice to Merck if the HSR Clearance Date shall not have occurred on or prior to the date that is one hundred and eighty (180) days after the Parties' filing of any required HSR Filings.

Article 13

MISCELLANEOUS PROVISIONS

13.1 **Relationship of the Parties**. Nothing in this Agreement is intended or shall be deemed to constitute a partnership, agency, joint venture or employer-employee relationship between the Parties.

13.2 **Assignment**.

(a) Except as expressly provided herein, neither this Agreement nor any interest hereunder shall be assignable, nor any other obligation delegable, by Licensor without the prior written consent of Merck (not to be unreasonably withheld or delayed). Notwithstanding the foregoing, Licensor may assign this Agreement in whole without the consent of Merck to (a) any Affiliate or (b) a successor to substantially all of the business of the assigning Party to which this Agreement relates, in connection with any merger, sale of stock, sale of assets or other similar transaction; provided that such assignment shall not provide Merck with rights or access to intellectual property rights of any such successor.

(b) Merck may assign this Agreement, in whole or in part, to any Affiliate or Third Party without the consent of Licensor. Merck shall give written notice to Licensor promptly following any such assignment.

(c) No assignment under this Section 13.2 shall relieve the assigning party of any of its responsibilities or obligations hereunder and provided, further, that as a condition of such assignment, the assignee shall agree to be bound by all obligations of the assigning party hereunder.

(d) This Agreement shall be binding upon the successors and permitted assigns of the Parties.

(e) Any assignment not in accordance with this Section 13.2 shall be void.

13.3 **Performance by Affiliates**. Merck shall have the right to have any of its obligations hereunder performed, or its rights hereunder exercised, by, any of its Affiliates and the performance of such obligations by any such Affiliate(s) shall be deemed to be performance by Merck; provided, however, Merck shall be responsible for ensuring the performance of its obligations under this Agreement and that any failure of any Affiliate performing obligations of Merck hereunder shall be deemed to be a failure by Merck to perform such obligations.

13.4 **Change of Control**. In the event of a Change of Control of Licensor involving a Merck Competitor, then from and after the date of such Change of Control, (a) Merck shall cease to have any reporting obligations hereunder toward Licensor or its successor entity, except for the royalty reports required under Section 5.8; (b) require Licensor, including the Change of Control party, to adopt reasonable procedures to be agreed upon in writing with Merck to prevent the disclosure of all Confidential Information of Merck and its Affiliates and other information with respect to the Development of Compounds, Follow-On Compounds and Licensed Products (collectively "**Sensitive Information**") beyond Licensor personnel having access to and knowledge of Sensitive Information prior to the Change of Control and to control the dissemination of Sensitive Information disclosed after the Change of Control. The purposes of such procedures shall be to strictly limit such disclosures to only those personnel having a need to know Sensitive Information in order for Licensor to perform its obligations under this Agreement and to prohibit the use of Sensitive Information for competitive reasons against Merck and its Affiliates, including the use of Sensitive Information for the development or commercialization of Competing Products.

13.5 **Further Actions**. Each Party agrees to execute, acknowledge and deliver such further instruments and to do all such other acts as may be necessary or appropriate in order to carry out the purposes and intent of this Agreement.

13.6 **Accounting Procedures**. Each Party shall calculate all amounts hereunder and perform other accounting procedures required hereunder and applicable to it in accordance with either, as applicable (a) United States generally accepted accounting principles (US GAAP) or (b) International Financial Reporting Standards (IFRS), whichever is normally used by such Party to calculate its financial position, and in each case consistently applied by such Party.

13.7 **Force Majeure**. Neither Party shall be liable to the other for failure or delay in the performance of any of its obligations under this Agreement for the time and to the extent such failure or delay is caused by acts of God, earthquake, riot, civil commotion, terrorism, war, strikes or other labor disputes, fire, flood, failure or delay of transportation, default by suppliers or unavailability of raw materials, governmental acts or restrictions or any other reason which is beyond the control of the respective Party. The Party affected by force majeure shall provide the other Party with full particulars thereof as soon as it becomes aware of the same (including its best estimate of the likely extent and duration of the interference with its activities), and will use Commercially Reasonable Efforts to overcome the difficulties created thereby and to resume performance of its obligations hereunder as soon as practicable.

13.8 **No Trademark Rights**. Except to the extent set forth in Section 3.11 above, no right, express or implied, is granted by this Agreement to a Party to use in any manner the name or any other trade name or trademark of the other Party in connection with the performance of this Agreement or otherwise.

13.9 **Entire Agreement of the Parties; Amendments**. This Agreement and the schedules and exhibits hereto constitute and contain the entire understanding and agreement of the Parties respecting the subject matter hereof and cancel and supersede any and all prior negotiations, correspondence, representations, assurances, promises, understandings and agreements between the Parties, whether oral or written, regarding such subject matter (each a "Pre-Contractual Statement"). Each Party acknowledges that it is not entering into this Agreement in reliance on any Pre-Contractual Statement. Neither Party shall have any right of action against the other Party arising out of or in connection with any Pre-Contractual Statement (except in the case of fraud or fraudulent misrepresentation). Notwithstanding the foregoing, the [**], and the [**], shall remain in full force and effect in accordance with its terms with respect to transfers of materials and disclosures of information governed thereby prior to the Effective Date, but shall be superseded by this Agreement with respect to such transfers and disclosures occurring on or after the Effective Date. No waiver, modification or amendment of any provision of this Agreement shall be valid or effective unless made in a writing referencing this Agreement and signed by a duly authorized officer of each Party.

13.10 **Captions.** The captions to this Agreement are for convenience only, and are to be of no force or effect in construing or interpreting any of the provisions of this Agreement.

13.11 **Governing Law; Jurisdiction**. This Agreement shall be governed by and interpreted in accordance with English law, excluding application of any conflict of laws

principles that would require application of the Law of any other jurisdiction. Subject to Article 11, the courts of England are to have exclusive jurisdiction to settle any dispute arising out of or in connection with this Agreement. Any proceedings, suit or action arising out of or in connection with this Agreement **("Proceedings")** shall therefore be brought in the English courts. Each Party agrees that this jurisdiction agreement is irrevocable and that it is for the benefit of the other Party. Each Party irrevocably waives (and irrevocably agrees not to raise) any objection, on the ground of forum non conveniens or on any other ground, to the taking of Proceedings in the English courts. Each Party also irrevocably agrees that a judgment against it in Proceedings brought in the English courts shall (provided there is no appeal pending or open) be conclusive and binding upon it and may be enforced in any other jurisdiction.

13.12 **Notices and Deliveries**. Any notice, request, approval or consent required or permitted to be given under this Agreement shall be in writing and shall be deemed to have been sufficiently given if delivered in person, transmitted by facsimile (receipt verified) or by express courier service (signature required) to the Party to which it is directed at its address or facsimile number shown below or such other address or facsimile number as such Party shall have last given by notice to the other Party.

If to Merck, addressed to:

Merck KGaA
Frankfurter Strasse 250
64293 Darmstadt, Germany
Attn: Merck Serono Legal Department
Facsimile: 49-6151-72-2373

If to Licensor, addressed to:

Idera Pharmaceuticals, Inc.
167 Sidney Street
Cambridge, MA 02139
Attention: Chief Executive Officer
Facsimile: (617) 679-5592

With a copy to:

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, MA 02109
Attention: David E. Redlick, Esq.
Facsimile: (617) 526-5000

13.13 **Waiver**. A waiver by either Party of any of the terms and conditions of this Agreement in any instance shall not be deemed or construed to be a waiver of such term or condition for the future, or of any other term or condition hereof. All rights, remedies, undertakings, obligations and agreements contained in this Agreement shall be cumulative and

none of them shall be in limitation of any other remedy, right, undertaking, obligation or agreement of either Party.

13.14 **Rights Of Third Parties.** The Parties to this Agreement do not intend that any term of this Agreement shall be enforceable by virtue of the Contract (Rights of Third Parties) Act 1999 or otherwise by any Person who is not a Party to this Agreement.

13.15 **Severability**. When possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable Law, but if any provision of this Agreement is held to be prohibited by or invalid under applicable Law, such provision will be ineffective only to the extent of such prohibition or invalidity, without invalidating the remainder of this Agreement. The Parties shall make a good faith effort to replace the invalid or unenforceable provision with a valid one which in its economic effect is most consistent with the invalid or unenforceable provision.

13.16 **Counterparts**. This Agreement may be executed in one or more counterparts, each of which will be deemed an original, and all of which together will be deemed to be one and the same instrument. A facsimile copy of this Agreement, including the signature pages, will be deemed an original.

[Remainder of page intentionally left blank]

In Witness Whereof, the Parties have caused this Agreement to be executed and delivered by their respective duly authorized officers as of the day and year first above written, each copy of which shall for all purposes be deemed to be an original.

IDERA PHARMACEUTICALS, INC.

By /s/ Sudhir Agrawal
Name: Sudhir Agrawal
Title: CEO and CSO

By _____
Name: _____
Title: _____

MERCK KGaA

By /s/ Elmar Schnee
Name: Elmar Schnee
Title: General Partner
and Member of the Executive Board

i.V.

By /s/ Jens Eckhardt
Name: Jens Eckhardt
Title: Legal Counsel

Schedule 1.11

Molecular Structures of Compounds

IMO-2055:

[**]

IMO-2125:

[**]

Schedule 1.24

Characteristics of Follow-On Compounds

Follow-On Compounds will be evaluated for their ability to meet or exceed the activity of [**], which shall serve as the benchmark for the synthesis of Follow-On Compounds. Follow-On Compounds that meet or exceed the activity of [**] in the following assays will be deemed to have satisfied the evaluation criteria and will be designated as Follow-On Compounds. Any assay conducted using primary human cells shall be conducted separately using cells from two individual donors.

[**]

Schedule 1.37

Licensor Materials

Compounds

Present Inventory:

Licensor will provide Merck with the Drug Product vials [**].
The bulk API will be provided to Merck against reimbursement by Merck of the costs which Idera had incurred [**]. Merck will elect in writing within [**] days after Effective Date if and to what extent bulk API shall be transferred to Merck. Such election shall be in [**] gram quantities.

[**]	Approximately [**] grams bulk API	Approximately [**] [**]mg Drug Product vials

Follow-On Compounds

Licensor will provide Merck with up to **[**]**mg of each Follow-On Compound at time of transfer to Merck pursuant to Section 3.6, **[**]** to Merck.

IDP Compound #	Sequence	Modifications
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]

[**].

Schedule 1.38

Licensor Patents

Idera Number:	Docket #	Continuation	PCT Nationalization County	Title:	Status	Application Number	Application Date	Patent /Publication Number	Grant Date

[**]

Confidential materials omitted and filed separately with the Securities and Exchange Commission. A total of 7 pages have been omitted.

Schedule 2.3

Initial Technology Transfer

Technology Transfer Plan — IMO-2055 & IMO-2125

[**]

Schedule 2.4

Manufacturing Technology Transfer

Manufacturing Technology Transfer Plan — IMO-2055 & IMO-2125

[**]

Schedule 3.3

On-Going Trials Budget

Theradex® Study Budget — IDP 2055-200 (NSCLC) — Payment Schedule.

[**]

Confidential materials omitted and filed separately with the Securities and Exchange Commission. A total of 17 pages have been omitted.

Schedule 6.5

Patent Countries

[**]

Schedule 7.3.1

Idera Press Release

Contacts:

Idera Pharmaceuticals, Inc.
Kelly Luethje
617-679-5519
E-mail: kluethje@iderapharma.com

MacDougall Biomedical Communications
Chris Erdman
508-647-0209
E-mail: cerdman@macbiocom.com

Idera Pharmaceuticals and Merck KGaA to Collaborate on Development of TLR9 Agonists for Treatment of Cancer

Cambridge, MA, December XX, 2007 — Idera Pharmaceuticals, Inc. (Nasdaq: IDRA) announced today that it has entered into a worldwide licensing and collaboration agreement with Merck KGaA of Darmstadt, Germany, for the research, development and commercialization of Idera's Toll-like Receptor 9 (TLR9) agonists for the treatment of cancer.

Under the agreement, Idera has agreed to exclusively license the therapeutic oncology applications, excluding cancer vaccines, of its lead TLR9 agonists, IMO-2055 and IMO-2125. In addition, Idera and Merck KGaA have agreed to engage in a research collaboration to identify a specified number of novel, follow-on TLR9 agonists, which will be derived using Idera's chemistry-based approach and for which Merck will have the exclusive right to use in oncology applications other than cancer vaccines.

"Merck is committed to the development of innovative approaches to cancer therapy on a global basis and we expect that this collaboration with Idera will help us move toward that goal," said Vincent Aurentz, Executive Board Member and Head of Portfolio Management and Business Development for the Merck Serono division. "We believe that TLR9 agonists represent a novel mechanism of action with great potential and we look forward to advancing their development for various oncology indications."

Under the terms of the agreement, Merck KGaA has agreed to pay an upfront license fee of $40 million (about EUR 27 million based on current exchange rates) to Idera. In addition, Idera is eligible to receive milestone payments of up to $389 million, based on current exchange rates, (EUR 264 million), depending on success in achieving clinical development and commercialization, as well as royalties on sales of any products developed and commercialized by Merck KGaA using IMO-2055, IMO-2125 or the follow-on TLR9 agonists. The contract will take effect and the upfront fee will be paid

following, and subject to, regulatory clearance under the Hart-Scott-Rodino Antitrust Improvements Act.

“Idera has chosen to collaborate with Merck KGaA for the application of our TLR9 agonists in oncology because of its proven capabilities and success in developing novel therapies for cancer and their commitment to global research, development and commercialization in this area,” said Sudhir Agrawal, D. Phil., Chief Executive Officer and Chief Scientific Officer of Idera. “This collaboration adds Merck KGaA’s experience and resources to the development of our TLR9 agonists in oncology and provides us with additional capital to advance our internal TLR-targeted drug discovery and development programs. We look forward to working closely with Merck KGaA to realize the potential of TLR9 agonists in cancer therapy.”

About IMO-2055

IMO-2055 is a novel DNA-based agonist of TLR9. IMO-2055 has been evaluated at multiple-dose levels for safety and immunological activity in Phase 1 trials involving healthy volunteers and patients with refractory solid tumors. IMO-2055 is currently in a Phase 1b trial in combination with Tarceva® and Avastin® in patients with advanced non-small cell lung cancer and is being evaluated at two dose levels in a Phase 2a trial in patients with renal cell carcinoma. IMO-2055 also is being evaluated in combination with chemotherapy agents in a Phase 1 trial in patients with refractory solid tumors.

About IMO-2125

IMO-2125 is a second DNA-based TLR9 agonist and is of a class designed to induce high levels of interferon-alpha and other cytokines and chemokines. IMO-2125 presently is being evaluated in a Phase I trial in patients with chronic hepatitis C virus infection who have not responded to standard treatment. This indication is not included in the agreement with Merck KGaA.

About TLRs

Toll-like Receptors (TLRs) function in human immune cells as the sensors of pathogens. They recognize different microbial products present in pathogens such as bacteria, viruses and parasites, and mount an appropriate immune response against the foreign invaders. TLRs have also been shown to recognize endogenous ligands in autoimmune diseases. TLRs have become attractive targets for developing immune modulators to treat a number of diseases, including cancers and infectious, respiratory and autoimmune diseases, and for use as vaccine adjuvants.

About Merck KGaA

Merck of Darmstadt, Germany, is a global pharmaceutical and chemical company with sales of EUR 6.3 billion in 2006, a history that began in 1668, and a future shaped by 30,962 employees in 61 countries. Its success is characterized by innovations from entrepreneurial employees. Merck’s operating activities come under the umbrella of Merck KGaA, in which the Merck family holds an approximately 70% interest and free shareholders own the remaining approximately 30%. In 1917 the U.S. subsidiary Merck & Co. was expropriated and has been an independent company ever since.

About Idera Pharmaceuticals, Inc.

Idera Pharmaceuticals is a drug discovery and development company that is developing drug candidates to treat cancer and infectious, respiratory, and autoimmune diseases, and for use as vaccine adjuvants. Idera's proprietary drug candidates are designed to modulate specific TLRs, which are a family of immune system receptors. Idera's pioneering DNA chemistry expertise enables it to identify drug candidates for internal development and creates opportunities for multiple collaborative alliances. Internal programs include IMO-2125, a lead candidate for treating infectious diseases, and discovery-stage compounds for autoimmune diseases. Idera has identified DNA-based compounds which have been shown to act as antagonists to TLRs 7 and 9 in preclinical studies and are being evaluated in preclinical disease models of lupus, collagen-induced arthritis and multiple sclerosis. Idera is collaborating with Novartis International Pharmaceutical, Ltd. for the discovery, development, and commercialization of TLR9 agonists for the treatment of asthma and allergy indications. Idera is also collaborating with Merck & Co., Inc. for the use of Idera's TLR7, 8 and 9 agonists in combination with Merck & Co.'s therapeutic and prophylactic vaccines in the areas of oncology, infectious diseases, and Alzheimer's disease. Merck & Co. of the U.S. is not related to Merck KGaA of Germany. For more information, visit www.iderapharma.com.

Idera Forward Looking Statements

This press release contains forward-looking statements concerning Idera Pharmaceuticals, Inc. that involve a number of risks and uncertainties. For this purpose, any statements contained herein that are not statements of historical fact may be deemed to be forward-looking statements. Without limiting the foregoing, the words "believes," "anticipates," "plans," "expects," "estimates," "intends," "should," "could," "will," "may," and similar expressions are intended to identify forward-looking statements. There are a number of important factors that could cause Idera's actual results to differ materially from those indicated by such forward-looking statements, including whether the collaboration with Merck KGaA will be successful and whether the Company will receive any of the milestone payments provided for under the collaboration; whether products based on Idera's technology will advance into or through the clinical trial process on a timely basis or at all and receive approval from the United States Food and Drug Administration or equivalent foreign regulatory agencies; whether, if the Company's products receive approval, they will be successfully distributed and marketed; whether the results of preclinical studies will be indicative of results that may be obtained in clinical trials; whether the Company's collaborations with Novartis and Merck & Co. will be successful; whether Idera's cash resources will be sufficient to fund the Company's operations, including product development and clinical trials; and such other important factors as are set forth under the caption "Risk Factors" in Idera's Quarterly Report on Form 10-Q filed on November 13, 2007, which important factors are incorporated herein by reference. Idera disclaims any intention or obligation to update any forward-looking statements.

# # #

Schedule 7.3.2

Merck Press Release

Your Contact

Phyllis Carter
Phone +49 6151-72 7144

News Release

December xx, 2007

Merck KGaA and Idera Pharmaceuticals to Collaborate on Development of TLR9 Agonists for Treatment of Cancer

Darmstadt, December xx, 2007 — Merck KGaA announced today that it has entered into a worldwide licensing and collaboration agreement on behalf of its Merck Serono division with Idera Pharmaceuticals, Inc. of Cambridge, Massachusetts, USA (Nasdaq: IDRA) for the research, development, and commercialization of Idera's Toll-like Receptor 9 (TLR9) agonists for the treatment of cancer.

Under the agreement, Idera has agreed to exclusively license the therapeutic oncology applications, excluding their use with cancer vaccines, of its lead TLR9 agonists, IMO-2055 and IMO-2125. In addition, Merck and Idera have agreed to engage in a research collaboration to identify a specified number of novel, follow-on TLR9 agonists, which will be derived using Idera's chemistry-based approach and for which Merck will have the exclusive right to use in oncology applications other than cancer vaccines.

"Merck is committed to the development of innovative approaches to cancer therapies on a global basis and we expect that this collaboration with Idera will help us move toward that goal," said Vincent Aurentz, Executive Board Member and Head of Portfolio Management and Business Development for the Merck Serono division. "We believe that TLR9 agonists represent a novel mechanism of action with great potential and we look forward to advancing their development for various oncology indications."

Under the terms of the agreement, Merck has agreed to pay an up-front license fee of $40 million (about EUR 27 million based on current exchange rates) to Idera. In addition, Idera is eligible to receive milestone payments of up to $389 million based on current exchange rates (EUR 264 million), depending on success in achieving clinical development and commercialization, as well as royalties on sales of any products developed and commercialized by Merck based on IMO-2055, IMO-2125 or the follow-on TLR9 agonists. The contract will take effect and the upfront fee will be paid following regulatory clearance under the Hart-Scott-Rodino Antitrust Improvements Act.

"Idera has chosen to collaborate with Merck KGaA for the application of our TLR9 agonists in oncology because of its proven capabilities and success in developing novel therapies for cancer and its commitment to global research, development and

commercialization in this area," said Sudhir Agrawal, D. Phil., Chief Executive Officer and Chief Scientific Officer of Idera.

About IMO-2055

IMO-2055 is a novel DNA-based agonist of TLR9. It has been evaluated at multiple dose levels for safety and immunological activity in Phase I trials involving healthy volunteers and patients with refractory solid tumors. IMO-2055 is currently in a Phase 1b trial in combination with Tarceva® and Avastin® in patients with advanced non-small cell lung cancer and is being evaluated at two dose levels in a Phase IIa trial in patients with renal-cell carcinoma (kidney cancer). It also is being evaluated in combination with chemotherapy agents in a Phase I trial in patients with refractory solid tumors.

About IMO-2125

IMO-2125 is a second DNA-based TLR9 agonist and is of a class designed to induce high levels of interferon-alpha and other cytokines and chemokines. IMO-2125 currently is being evaluated in a Phase I trial in patients with chronic hepatitis C virus infection who have not responded to standard treatment. This indication is not included in the agreement with Merck.

About TLRs

Toll-like Receptors (TLRs) function in human immune cells as the sensors of pathogens. They recognize different microbial products present in pathogens such as bacteria, viruses and parasites, and mount an appropriate immune response against the foreign invaders. TLRs have also been shown to recognize endogenous ligands in autoimmune diseases. TLRs have become attractive targets for developing immune modulators to treat a number of illnesses, including cancers and infectious, respiratory and autoimmune diseases, and for use as vaccine adjuvants.

About Idera Pharmaceuticals, Inc.

Idera Pharmaceuticals is a drug discovery and development company that is developing drug candidates to treat cancer and infectious, respiratory, and autoimmune diseases, and for use as vaccine adjuvants. Idera's proprietary drug candidates are designed to modulate specific TLRs, which are a family of immune system receptors. Idera's pioneering DNA chemistry expertise enables it to identify drug candidates for internal development and creates opportunities for multiple collaborative alliances. For more information, visit www.iderapharma.com.

Merck is a global pharmaceutical and chemical company with sales of EUR 6.3 billion in 2006, a history that began in 1668, and a future shaped by 30,962 employees in 61 countries. Its success is characterized by innovations from entrepreneurial employees. Merck's operating activities come under the umbrella of Merck KGaA, in which the Merck family holds an approximately 70% interest and free shareholders own the remaining approximately 30%. In 1917 the U.S. subsidiary Merck & Co. was expropriated and has been an independent company ever since.

Schedule 10.4(c)

Other Effects of Termination

Part I: General

Pursuant to Section 10.4(c), Merck, its Affiliates and Sublicensees shall, at Licensor's request:

(A) notify the applicable Regulatory Authorities relating to such regulatory documentation, applications for Regulatory Approvals and Regulatory Approvals;

(B) provide Licensor with copies of all correspondence between Merck and any Regulatory Authorities relating to such regulatory filings, applications for Regulatory Approval and Regulatory Approval;

(C) assign (or cause its Affiliates to assign) to Licensor all agreements with any Third Party with respect to the conduct of clinical trials for the terminated Compounds, Follow-On Compounds and/or Licensed Products, including agreements with contract research organizations, clinical sites and investigators, unless expressly prohibited by any such agreement (in which case Merck shall cooperate, and shall cause its Affiliates and Sublicensees to cooperate, with Licensor in all reasonable respects to secure the consent of such Third Party to such assignment);

(D) provide Licensor with copies of all reports and data generated or obtained by or on behalf of Merck or its Affiliates or Sublicensees pursuant to this Agreement that relate to any Compounds, Follow-On Compounds and/or Licensed Products that have not previously been provided to Licensor;

(E) if Merck, its Affiliates or Sublicensees have manufactured, are manufacturing or are having manufactured any Compounds, Follow-On Compounds, Licensed Products and/or any intermediate thereof: (x) Merck shall, if requested by Licensor, supply Licensor with requirements for all such Compounds, Follow-On Compounds, Licensed Products and intermediates for up to [**] months after such termination at a transfer price equal to [**], (y) within ninety (90) days after Licensor's written request, Merck shall provide to Licensor or its designee all information in its possession with respect to the manufacture of each such Compound, Follow-On Compound, Licensed Product or intermediate;

(F) grant to Licensor a non-exclusive, world-wide, irrevocable, perpetual, royalty-bearing (as set forth on this Schedule 10.4(c)), license, including the right to grant sublicenses, in, to and under the Merck Patents, including Merck's interest in any Joint Patents, and under any other intellectual property rights of Merck claiming or disclosing subject matter conceived, discovered, made or reduced to practice (in whole or in part) after the Effective Date by or on behalf of Merck, its Affiliates or Sublicensees pursuant to the research, use, Development, manufacture, or Commercialization of Compounds, Follow-On Compounds or Licensed Products, to research, Develop, make, have made, import, export, use and Commercialize, Compounds, Follow-On Compounds and Licensed Products in the Field; and

(G) grant to Licensor an exclusive, worldwide, irrevocable, perpetual, royalty-bearing (as set forth on this Schedule 10.4(c)), license under all trademarks (if any) then being used by Merck with respect to the applicable Compounds, Follow-On Compounds and/or Licensed Products; provided that the foregoing shall not include any right or license in or to Merck's corporate tradenames, trademarks or logos.

Part II: "Reverse" Royalty

If Licensor elects to (a) use clinical data owned by Merck, its Affiliates or sublicensees and provided to Licensor pursuant to Section 10.4(c) or this Schedule 10.4(c) (excluding safety data and other data required by a Regulatory Authority to be submitted) to support an application for Regulatory Approval for a Licensed Product that reverts to Licensor pursuant to Section 10.4(c), (b) obtain a non-exclusive license under Merck Patents solely owned by Merck pursuant to Paragraph F, and/or (c) obtain an exclusive trademark license under Paragraph G, in consideration of such rights and licenses, then if (and only if) Licensor's notice of termination pursuant to Section 10.3 or Merck's notice of termination pursuant to Section 10.2 or 10.3 is given after Merck's completion of at least one Phase II Clinical Trial with respect to such Licensed Product, the following provisions shall apply to such Licensed Product (but not to other Licensed Products):

A. License Fee for Licensed Products

Within thirty (30) days after the first commercial sale of such Licensed Product by Licensor, its Affiliates or sublicensees (with first commercial sale to be determined by applying the definition of First Commercial Sale to the sale of the Licensed Product by Licensor, its Affiliates and sublicensees, a **"Licensor First Commercial Sale"**), Licensor shall pay to Merck a one-time payment equal to [**] percent ([**]%) of all milestone payments actually paid by Merck to Licensor pursuant to Section 5.2 with respect to such Licensed Product.

B. Royalty Payments for Licensed Products

In addition to A. above, Licensor shall pay Merck a royalty in the amount set forth below on net sales of such Licensed Product by Licensor, its Affiliates or sublicensees after the effective date of termination (with such net sales being determined by applying the definition of Net Sales mutatis mutandis to any such sales of such Licensed Product by Licensor, its Affiliates or sublicensees) (hereinafter, respectively, **"Licensor Net Sales"** and the **"Post-Termination Royalty"**).

The applicable royalty rate shall be determined on a Licensed Product-by-Licensed Product and country-by-country basis based on the annual worldwide Licensor Net Sales of such Licensed Product.

1. The use of clinical data owned by Merck, its Affiliates or sublicensees and provided to Licensor pursuant to Section 10.4(c) or this Schedule 10.4(c) (excluding safety data and other data required by a Regulatory Authority to be submitted) to support an application for Regulatory Approval for a Licensed Product that reverts to Licensor pursuant to Section 10.4(c) shall bear a royalty between [**] percent ([**]%) and [**] percent ([**]%) of Licensor Net Sales, as determined in accordance with the royalty chart set forth below. For purposes of

clarity, the provision of (a) safety data, and/or (b) data, information or documentation other than clinical data, shall not, by itself, trigger a royalty obligation pursuant to this Paragraph 1.

2. In addition to Paragraph 1 above of this Part II, the grant of a non-exclusive license pursuant to Paragraph (F) of this Schedule 10.4(c) shall bear a royalty between [**] percent ([**]%) and [**] percent ([**]%) of Licensor Net Sales, as determined in accordance with the royalty chart set forth below; provided that the royalty obligation set forth in this Paragraph 2 shall apply solely with respect to a non-exclusive license elected under the Merck Patents solely owned by Merck.

3. In addition to Paragraph 1 and/or 2 of this Part II, the grant of an exclusive license to the trademark(s) pursuant to Paragraph (G) of this Schedule 10.4(c) shall bear a royalty between [**] percent ([**]%) and [**] percent ([**]%) of Licensor Net Sales, as determined in accordance with the royalty chart set forth below.

4. Except as expressly provided on this Schedule 10.4(c), Licensor shall have no obligation to make any payments to Merck in consideration for the rights, licenses, information and materials provided or to be provided to Licensor pursuant to Section 10.4(c) or this Schedule 10.4(c).

Annual Worldwide Licensed Product Licensor Net Sales (in €) per Calendar Year	**Incremental Royalty Rate**
For Licensor Net Sales of all Licensed Products from €[**]up to and including €[**]	[**]%
For that portion of Licensor Net Sales of all Licensed Products that is greater than €[**]and less than or equal to €[**]	[**]%
For that portion of Licensor Net Sales of all Licensed Products that is greater than €[**]and less than or equal to €[**]	[**]%
For that portion of Licensor Net Sales of all Licensed Products that is greater than €[**]	[**]%

By way of illustration, assume in a Calendar Year that Licensor Net Sales of all Licensed Products in Euros total €[**], and that only one of Paragraphs 1, 2 or 3 above applies. The total royalties due and payable by Licensor to Merck for such Licensor Net Sales would be [**] Euros (€[**]), calculated as follows:

[**]

Total Royalty = €[**]

If two (2) of Paragraphs 1, 2 and 3 above apply, the total royalties due and payable by Licensor to Merck would be €[**]. If all of Paragraphs 1, 2 and 3 above apply, the total royalties due and payable by Licensor to Merck would be €[**].

For purposes of determining whether a royalty threshold described above has been attained, only Licensor Net Sales that are subject to a royalty payment shall be included in the total amount of

Licensor Net Sales and any Licensor Net Sales of Licensed Products for which the applicable Post-Termination Royalty Term (as defined below) has expired shall be excluded.

The royalty obligations set forth on this Schedule 10.4(c) shall be determined on a Licensed Product-by-Licensed Product and country-by-country basis and shall be payable for the period commencing on the Licensor First Commercial Sale of such Licensed Product by Licensor, its Affiliates or sublicensees in such country and ending ten (10) years thereafter, provided however, that in the event Licensor elected to obtain a license to a Merck Patent under Paragraph F of this Schedule 10.4(c), then such royalty shall be payable for the longer of (i) ten 10 years after the date of the Licensor First Commercial Sale of such Licensed Product by Licensor, its Affiliates or sublicensees in such country, or (ii) the date on which the manufacture, use, sale, offer for sale or importation of such Licensed Product in such country ceases to be Covered by a Valid Claim of a Merck Patent solely owned by Merck (the **"Post-Termination Royalty Term"**). Upon the expiration of each Post-Termination Royalty Term, all rights and licenses with respect to which the Post-Termination Royalty Term has expired shall become fully paid, royalty-free, irrevocable, perpetual, transferable and sublicensable.

Except for the last sentence of Section 5.7, Sections 5.6 through 5.13 of the Agreement shall apply *mutatis mutandis* to payments to be made by Licensor under this Part B of Schedule 10.4(c) as if Licensor was Merck, and Merck was Licensor in any of these Sections.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statements (Form S-8 Nos. 333-3898, 333-3900, 333-3902, 333-34008, 333-71938, 333-116010, 333-116011, 333-116012, 333-126664, 333-137687, 333-137688 and 333-147474, Form S-1 No. 333-136610, Form S-2 as amended by Form S-3/A No. 333-109630 and Form S-3 Nos. 333-111903, 333-119943, 333-126634, 333-131804, 333-133455, 333-133456, 333-139830 and 333-145556) of Idera Pharmaceuticals, Inc. and in the related Prospectuses of our reports dated March 7, 2008 with respect to the financial statements of Idera Pharmaceuticals, Inc. and the effectiveness of internal control over financial reporting of Idera Pharmaceuticals, Inc. included in this Annual Report (Form 10-K) for the year ended December 31, 2007.

/s/ Ernst & Young LLP

Boston, Massachusetts
March 7, 2008

Exhibit 31.1

Certification of Chief Executive Officer pursuant to Exchange Act Rules 13a-14 and 15d-14, as adopted pursuant to Section 302 of Sarbanes-Oxley Act of 2002

I, Sudhir Agrawal, certify that:

1. I have reviewed this Annual Report on Form 10-K of Idera Pharmaceuticals, 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 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 15(d)-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 annual 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 annual 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 changes in the registrant's internal control over financial reporting that occurred during the registrant's fourth fiscal quarter 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 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 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 and financial reporting.

/s/ Sudhir Agrawal
Sudhir Agrawal
Chief Executive Officer

Dated: March 11, 2008

Exhibit 31.2

Certification of Chief Financial Officer pursuant to Exchange Act Rules 13a-14 and 15d-14, as adopted pursuant to Section 302 of Sarbanes-Oxley Act of 2002

I, Louis J. Arcudi, III certify that:

1. I have reviewed this Annual Report on Form 10-K of Idera Pharmaceuticals, 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 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 15(d)-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 annual 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 annual 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 changes in the registrant's internal control over financial reporting that occurred during the registrant's fourth fiscal quarter 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 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 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 and financial reporting.

/s/ Louis J. Arcudi, III
Louis J. Arcudi, III
Chief Financial Officer

Date: March 11, 2008

Exhibit 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**

In connection with the Annual Report on Form 10-K of Idera Pharmaceuticals, Inc. (the "Company") for the period ended December 31, 2007 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Sudhir Agrawal, Chief Executive Officer of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, 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 results of operations of the Company.

A signed original of this written statement has been provided to Idera Pharmaceuticals, Inc. and will be retained by Idera Pharmaceuticals, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

/s/ Sudhir Agrawal
Sudhir Agrawal
Chief Executive Officer

Date: March 11, 2008

Exhibit 32.2

Certification of Chief Financial Officer 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 on Form 10-K of Idera Pharmaceuticals, Inc. (the "Company") for the period ended December 31, 2007 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Louis J. Arcudi, III Chief Financial Officer of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, 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 results of operations of the Company.

A signed original of this written statement has been provided to Idera Pharmaceuticals, Inc. and will be retained by Idera Pharmaceuticals, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

/s/ Louis J. Arcudi, III
Louis J. Arcudi, III
Chief Financial Officer

Date: March 11, 2008