INOVIO PHARMACEUTICALS, INC.
Form 10-K
March 17, 2014

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

FORM 10-K

x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2013

OR

¨ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
FOR THE TRANSITION PERIOD FROM TO

COMMISSION FILE NO. 001-14888

INOVIO PHARMACEUTICALS, INC.
(EXACT NAME OF REGISTRANT AS SPECIFIED IN ITS CHARTER)

DELAWARE	33-0969592
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
1787 SENTRY PARKWAY WEST BUILDING 18, SUITE 400 BLUE BELL, PENNSYLVANIA	19422
(Address of principal executive offices)	(Zip Code)

REGISTRANT'S TELEPHONE NUMBER, INCLUDING AREA CODE: (267) 440-4200

SECURITIES REGISTERED PURSUANT TO SECTION 12(B) OF THE ACT:

COMMON STOCK, $0.001 PAR VALUE	NYSE MKT
(Title of Class)	(Name of Each Exchange on Which Registered)

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 x
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ¨ No x
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 such filing requirements for the past 90 days. Yes x No ¨
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x No ¨
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. x
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 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	x
Non-accelerated filer	¨ (Do not check if a smaller reporting company)	Smaller reporting company	¨

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

The aggregate market value of the voting and non-voting common equity (which consists solely of shares of Common Stock) held by non-affiliates of the Registrant as of June 30, 2013 was approximately $133,199,615 based on $0.80, the closing price on that date of the Registrant's Common Stock on the NYSE MKT.

The number of shares outstanding of the Registrant's Common Stock, $0.001 par value, was 239,609,760 as of March 7, 2014.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement to be filed with the Commission pursuant to Regulation 14A in connection with the registrant's 2012 Annual Meeting of Stockholders (the "Proxy Statement') are incorporated by reference into Part III of this Report. Such Proxy Statement will be filed with the Commission not later than 120 days after the conclusion of the registrant's fiscal year ended December 31, 2013.

TABLE OF CONTENTS

PART I	2
ITEM 1. BUSINESS	2
ITEM 1A. RISK FACTORS	28
ITEM 1B. UNRESOLVED STAFF COMMENTS	41
ITEM 2. PROPERTIES	41
ITEM 3. LEGAL PROCEEDINGS	41
ITEM 4. MINE SAFETY DISCLOSURES	42
PART II	43
ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES	43
ITEM 6. SELECTED FINANCIAL DATA	44
ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS	45
ITEM 7A. QUALITATIVE AND QUANTITATIVE DISCLOSURES ABOUT MARKET RISK	55
ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA	56
ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE	56
ITEM 9A. CONTROLS AND PROCEDURES	56
PART III	58
ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE	58
ITEM 11. EXECUTIVE COMPENSATION	58
ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS	58
ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE	58
ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES	58
PART IV	59
ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES	59
SIGNATURES	65
CONSOLIDATED FINANCIAL STATEMENTS	F-1

Unless stated to the contrary, or unless the context otherwise requires, references to "Inovio," "the company," "our company," "our," or "we" in this report include Inovio Pharmaceuticals, Inc. and subsidiaries.

PART I

ITEM 1. BUSINESS

This Annual Report (including the following section regarding Management's Discussion and Analysis of Financial Condition and Results of Operations) contains forward-looking statements regarding our business, financial condition, results of operations and prospects. Words such as "expects," "anticipates," "intends," "plans," "believes," "seeks," "estimates" similar expressions or variations of such words are intended to identify forward-looking statements, but are not the exclusive means of identifying forward-looking statements in this Annual Report. Additionally, statements concerning future matters, including statements regarding our business, our financial position, the research and development of our products and other statements regarding matters that are not historical are forward-looking statements.

Although forward-looking statements in this Annual Report reflect the good faith judgment of our management, such statements can only be based on facts and factors currently known by us. Consequently, forward-looking statements are inherently subject to risks and uncertainties and actual results and outcomes may differ materially from the results and outcomes discussed in or anticipated by the forward-looking statements. Factors that could cause or contribute to such differences in results and outcomes include without limitation those discussed under the heading "Risk Factors" below, as well as those discussed elsewhere in this Annual Report. Readers are urged not to place undue reliance on these forward-looking statements, which speak only as of the date of this Annual Report. We undertake no obligation to revise or update any forward-looking statements in order to reflect any event or circumstance that may arise after the date of this Annual Report. Readers are urged to carefully review and consider the various disclosures made in this Annual Report, which attempt to advise interested parties of the risks and factors that may affect our business, financial condition, results of operations and prospects.

Overview

We are developing a new generation of vaccines and immune therapies, called synthetic vaccines, focused on cancers and infectious diseases. Our DNA-based immune therapies, in combination with our proprietary electroporation delivery devices, are generating best-in-class immune responses, with therapeutic T cell responses exceeding other technologies in terms of magnitude, breadth, and response rate. In addition, our novel SynCon® vaccine design has shown the ability to help break the immune system's tolerance of cancerous cells. Given the recognized role of killer T cells in eliminating cancerous or infected cells from the body, Inovio's scientists believe that its active immunotherapies may play an important role in helping fight these diseases. Our SynCon® design is also intended to provide "universal" protection against known as well as new unmatched strains of pathogens such as influenza. Human data to date have shown a favorable safety profile of our DNA vaccines delivered using electroporation. We have completed, current or planned clinical programs of our proprietary SynCon® vaccines and immunotherapies for HPV-caused pre-cancers and cancers (therapeutic), influenza (preventive), prostate cancer (therapeutic), breast/lung/pancreatic cancer (therapeutic), hepatitis C virus (HCV) (therapeutic), hepatitis B virus (HBV) (therapeutic), HIV, and malaria (preventive and therapeutic). Our partners and collaborators include Roche, University of Pennsylvania, Drexel University, National Microbiology Laboratory of the Public Health Agency of Canada, Program for Appropriate Technology in Health/Malaria Vaccine Initiative ("PATH"/ "MVI"), National Institute of Allergy and Infectious Diseases ("NIAID"), Merck, United States Military HIV Research Program ("USMHRP"), U.S. Army Medical Research Institute of Infectious Diseases ("USAMRIID"), HIV Vaccines Trial Network ("HVTN") and Department of Homeland Security ("DHS").

Industry Background

Historical Importance of Vaccines

Apart from sanitation and clean water, we believe that the idea of stimulating the immune system, to date via preventive vaccines, has saved more lives and prevented more human suffering than any other human invention. As recently as a century ago, infectious diseases were the main cause of death worldwide, even in the most developed countries. Today, there is a vast range of vaccines available to protect against more than two dozen infectious diseases, especially for children, completely or virtually eradicating diseases such as smallpox and polio.

Challenges and Opportunities for Immune Stimulating Technologies

Despite the advances made to quality of life as a result of the development and use of vaccines over the past century, the technical boundaries of conventional vaccine technology have constrained the development of new preventive vaccines for challenging infectious diseases and been incapable of creating therapeutic vaccines or immunotherapies against diseases such as cancer. Today the opportunity for immune stimulating technologies with the potential to fight cancers and chronic infectious diseases has never appeared to be as promising given multiple recent and notable technology advancements such as checkpoint inhibitors.

Inovio’s Solution

With our synthetic vaccine platform comprising our SynCon® vaccine design process as well as our proprietary electroporation delivery technology, we have developed a pre-clinical and clinical stage pipeline of products that we believe has the potential to be safer than traditional vaccines (our synthetic vaccines are non-live and non-replicating, therefore they cannot cause the disease; no serious adverse events have been attributed to the vaccines in human studies to date), have equivalent or stronger immune-stimulating power than traditional vaccines (being similar to live viruses, which are the best at eliciting strong immune responses), are showing the potential to be used against diseases for which conventional vaccine technology cannot be applied, and have added advantages with respect to development time and cost. Pre-clinical studies in animals and initial human clinical study data have demonstrated a favorable safety profile and best-in-class immune responses that suggest the potential efficacy of our approach.

The Next Generation of Vaccines: Synthetic Vaccines

Our synthetic vaccines are designed to prevent a disease (prophylactic vaccines) or treat an existing disease (therapeutic vaccines). Our synthetic vaccines consist of a DNA plasmid encoding one or more selected antigens (proteins associated with a cancer or infectious disease that the body will recognize as foreign or dangerous) that are introduced into cells of humans or animals. The intent is to have those cells take up the DNA coding for the targeted antigen and use the cells’ natural machinery for making proteins useful to the body to produce the selected antigen(s) in the cells. These antigenic protein(s) may then trigger one or both of two arms of immune responses: the production of preventive antibodies, known as a humoral immune response, and/or the activation of therapeutic T-cells, known as a cellular or cell-mediated immune response. These responses may then neutralize or eliminate infectious agents (e.g. viruses, bacteria, and other microorganisms) or abnormal cells (e.g. malignant tumor cells).

Synthetic DNA vaccines have several potential advantages over traditional vaccines in that they are non-pathogenic (they cannot cause the disease), may provide preventive immune responses against diseases that cannot be controlled by traditional vaccines, may generate therapeutic immune responses against cancers and chronic infectious diseases, and are relatively fast, easy and less expensive to design and produce. For example, synthetic vaccines against newly identified viral agents may be developed within weeks or months, as opposed to the years often required to develop a traditional vaccine candidate. Synthetic vaccines can be stable under normal environmental conditions for extended periods of time.

Inovio's SynCon® Vaccines

Our synthetic DNA vaccines are designed to generate specific antibody and T cell responses. First we identify one or more antigens that we believe are the best targets to help direct the immune system toward a particular cancer or infectious disease. We then apply our SynCon® design process, which employs the extensive genetic data and sophisticated algorithms of bioinformatics. This SynCon® design uses the genetic make-up of the selected antigen(s) from multiple strains of a virus or variants of a cancer. We synthetically create a new genetic sequence of the antigen that represents a consensus of the DNA make-up of these multiple strains or variants of the targeted antigen. These unmatched antigens have been shown to break the immune system’s tolerance of cancer cells and/or provide protection against multiple unmatched strains of an infectious disease, e.g. influenza, creating a proof-of-concept of the ability to move beyond today’s “one bug, one drug” paradigm in which a vaccine must match the strain of the circulating virus in order to provide protection. These SynCon® synthetic vaccine constructs may provide a solution to the genetic “shift” and “drift” that is typical of infectious diseases. These new synthetic consensus DNA sequences do not exist in nature and are patentable.

Technically speaking, SynCon® vaccine antigens are designed by aligning numerous primary amino acid sequences and choosing DNA-based triplets for the most common or important amino acid at each site. These antigens are further optimized at the DNA level for codon usage, improved mRNA stability, and enhanced leader sequences for ribosome loading. The DNA inserts are therefore optimized at the genetic level to give them high expression capability in human cells. We believe these design capabilities allow us to better target appropriate immune system mechanisms and produce a higher level of the coded antigen to enhance the overall ability of the synthetic vaccine to induce the desired immune response.

Published human data from two different SynCon® DNA immunotherapies--one for treating HPV-caused pre-cancers and cancers as well as one for treating HIV infection have generated best-in-class T cell responses in terms of their magnitude, durability, and killing effect, providing evidence of their potential to provide significantly improved

preventive and therapeutic capabilities against cancers and infectious diseases.

Electroporation Delivery Technology

Our synthetic vaccine candidates are delivered into cells of the body using our highly efficient, proprietary electroporation (EP) DNA delivery technology, which uses brief, locally applied electric fields to create temporary and reversible permeability, or pores, in the cell membrane. Most drugs and biologics must enter into a cell in order to perform

their intended function. However, gaining entry into a cell through the cell's protective membrane can be a significant challenge. Electric pulse-induced permeabilization of the cellular membrane, referred to as electroporation, allows and enhances the uptake of a biopharmaceutical agent previously injected into local tissue.

Alternative delivery approaches based on the use of viruses and lipids are complex and expensive and have in the past created concerns regarding safety and caused unwanted immune responses against the carriers themselves (believed to compromise their ability to provide protection). We have published data showing the superior immune responses generated by our SynCon® vaccines delivered using our CELLECTRA® electroporation technology compared to a viral vector based approach. We have not seen any published data indicating the capability of alternative technologies focused on using genetic code to generate preventive or therapeutic antigens to exceed Inovio's immune response data obtained in early clinical studies.

We believe electroporation provides a relatively straightforward, cost effective method for delivering DNA into cells with high efficiency and minimal complications (as compared to viral vectors) and, importantly, enabling what we believe to be clinically relevant levels of gene expression and immune responses.

Products and Product Development

Inovio's primary focus is to independently and in partnership advance the products developed from its integrated platform consisting of its SynCon® vaccine and CELLECTRA® electroporation technologies. We are currently developing a number of synthetic vaccines for the prevention or treatment of cancer and chronic infectious diseases. The table below summarizes the status of our proprietary and collaborative product development programs as of December 31, 2013.

Inovio SynCon® Vaccine Development

		Development Status				
Product Area	Product and Indication(s)	Pre-Clinical	Phase I	Phase II	Phase III	Partner/Funding/Sponsor
Cancer	Cervical dysplasia (CIN 2/3) (VGX-3100)	X	X	IP		Inovio
	Cervical cancer (INO-3112) (VGX-3100 + DNA-based IL-12 cytokine)	X	X	P		Inovio
	Head/neck cancer (INO-3112) (VGX-3100 + DNA-based IL-12 cytokine)	X	X	P		Inovio
	Prostate cancer (INO-5150 +/- DNA-based IL-12 cytokine)	X	P			Roche
	hTERT expressing cancers (breast, lung, pancreatic) INO-1400	IP				Inovio
Infectious Disease	Hepatitis B Virus INO-1800	IP				Roche
	Hepatitis C Virus INO-1800 + DNA-based IL-28 cytokine)	X	IP			VGX International

HIV (preventive) (PENNVAX®-GP)	X	P	NIH/NIAID
HIV (preventive) (PENNVAX®-G)	X	IP	US MHRP/NIH/NIAID
Universal influenza (INO-3510)	X	X	NIH
Avian influenza (VGX-3400x)	X	X	Inovio
Malaria	IP		PATH MVI
Biodefense targets	IP		US AMRIID

X = Completed
IP = In Progress
P = Planning

Cancer Synthetic Vaccines

Previous Immune Therapy Successes Point to the Validity of Inovio's Immune Therapy and Vaccine Approach

In April 2010, the FDA approved the first cancer treatment "vaccine". This product, sipuleucel-T (Provenge®, manufactured by United States based Dendreon), is approved for use in some men with metastatic prostate cancer. It is designed to stimulate an immune response to prostatic acid phosphatase (PAP), an antigen present in most prostate cancers, by treating the patient's own white blood cells with PAP in cell culture and returning those cells back to the patient. Thus, this approach is more of a personalized approach to medicine compared to a therapeutic vaccine. In a clinical trial, sipuleucel-T increased the median survival of men with a certain type of metastatic prostate cancer by about four months. This was an encouraging step forward for the field of immunotherapies. However, besides the high cost to manufacture the product, one of the glaring weaknesses of this approach is that Provenge does not generate high levels of cancer-specific T cells.

More recently, progress in the field of immune checkpoint inhibitors ("CIs") has resulted in tremendous optimism regarding the potential for new immunotherapies against a spectrum of cancers. The immune system relies on a safeguard system of checkpoint mechanisms to prevent excessive or incorrectly directed immune responses. Many cancer cells have the ability to "hijack" these checkpoints and neutralize T cells sent by the immune system to eliminate them. Checkpoint inhibitors prevent the cancer cell's ability to evade these checkpoints and enable T cells (especially CD8 killer T cells) to complete their appropriate and intended killing function. Clinical studies by multiple companies of different checkpoint inhibitors have shown notable therapeutic impact against melanoma and other cancers. However, checkpoint inhibitors are a "passive" immunotherapy and, based on anecdotal observations, may be less effective if there is not a strong enough pre-existing level of antigen-specific CD8 T cells. Nevertheless, they provide significant encouragement that a strong T cell generating "active" immunotherapy used as a monotherapy or in combination with a checkpoint inhibitor may unleash significant therapeutic potential.

Inovio is advancing a growing pipeline of pre-clinical and clinical therapeutic vaccines targeting a range of cancers.

Therapeutic HPV Vaccine-VGX-3100

Late Stage Cervical Dysplasia (CIN 2/3)

HPV is the causative agent responsible for cervical pre-cancers, cervical cancer, one of the most rapidly growing cancers in men - head & neck cancer, and other anogenital cancers. At any given time, approximately 10% of the world's population is infected with HPV.

In the case of cervical pre-cancers and cancers, while roughly 70% of HPV infections are cleared by the body on its own, persistent HPV can lead to dysplasia, or premalignant changes in cells, of the cervix. Researchers have estimated the global prevalence of clinically pre-cancerous HPV infections at between 28 and 40 million. These HPV infections may lead to pre-malignant cervical dysplasia; persistent dysplasia may then progress to cancer. Every year, approximately 530,000 cases of cervical cancer are diagnosed worldwide, and about half of the afflicted women, primarily in developing countries, die.

There are currently two FDA approved vaccines, Gardasil® and Cervarix®, that protect against HPV-types 16 and 18, the two HPV types that cause approximately 70 percent of all cases of cervical cancer worldwide. However, preventive vaccines cannot provide protection for those already infected with HPV, which is a large population. In addition, not all girls and women eligible to be vaccinated are receiving these vaccines. In the US, only about 32% of the eligible female population is completing the full three-vaccination regimen. There is no viable therapeutic vaccine or drug to fight HPV, nor dysplasias (a pre-cancerous condition) and cancers caused by HPV. Current treatments are unappealing due to the potential psychological stress arising from the "watch-and-wait" process typically prescribed with early stage dysplasias and the potential for premature births or difficult births associated with ablative or surgical procedures to remove late stage cervical dysplasias.

Inovio's VGX-3100 is a therapeutic vaccine designed to raise immune responses against the E6 and E7 antigens of HPV types 16 and 18 that are present in both pre-cancerous and cancerous cells transformed by these HPV types. E6 and E7 are oncogenes that play an integral role in transforming HPV-infected cells into pre-cancerous and cancerous cells. The goal of the vaccine is to stimulate the body's immune system to mount a T cell response strong enough to cause the rejection of cells displaying the E6/E7 protein. The potential of such an immune therapy would be to treat pre-cancerous dysplasias as well as cervical cancers caused by these HPV types.

We completed the phase I study of our therapeutic cervical cancer vaccine (VGX-3100) in 2010. This dose escalation study tested the safety and immunogenicity of VGX-3100 in women previously treated for moderate or severe cervical intraepithelial neoplasia (CIN 2/3), a high grade premalignant lesion that may lead to cervical cancer. The trial enrolled patients in three cohorts of six subjects each with synthetic vaccine doses of 0.6 mg (0.3 mg each of two DNA plasmids), 2.0 mg, and 6.0 mg. Each subject was dosed at day 0, month 1 and month 3.

In September 2010, we presented top-line data showing achievement of best-in-class immune responses in this dose escalation study. Data from the trial included:

- Antigen-specific, dose-related T cell responses across the three dose groups;
- Strong antigen-specific antibody responses in all three dose groups;
- VGX-3100 delivered using Inovio's proprietary CELLECTRA® intramuscular electroporation delivery device was generally safe and well tolerated at all dose levels; and
- No vaccine-related serious adverse events (SAEs). Reported adverse events and injection site reactions were mild to moderate and required no treatment.

Immunological analyses of blood samples collected before and after treatment indicate that antigen-specific immune responses were induced against the target proteins produced by Inovio's vaccine. Using a validated, standard interferon- ELISpot assay, antigen-specific cytotoxic T-lymphocyte (CTL, or killer T cell) responses were observed against all four antigens (E6 and E7 proteins for HPV types 16 and 18). Overall, in all three dose cohorts combined, 14 out of 18 vaccinated subjects (78%) developed significant CTL responses, with positive responses ranging from under 100 to over 5000 SFU per million cells; 72% (13 of 18) responded to at least two antigens; and 50% (9 of 18) responded to all four antigens.

In the 6 mg cohort, five of six vaccinated subjects (83%) developed significant CTL responses by ELISpot, with average responses of 1362 SFU per million cells after three immunizations. This was a 118% increase compared to the 2 mg cohort average of 626 SFU per million cells (four responders out of six) and a 174% increase compared to the 0.6 mg dose cohort average of 497 SFU per million cells (four responders out of six).

Moreover, these ELISpot responses persisted 24 weeks after the last immunization in 86% of evaluable patients, indicating that T cell responses, in addition to antibody responses, persist for at least six months after the final immunization at month 3.

In July 2011, we reported data demonstrating long-term durability of T cell immune responses of up to two years (at the latest time measured) in 7 of 8 evaluated patients following a fourth vaccination of VGX-3100.

While the phase I study targeted only safety and immunogenicity as endpoints and did not address clinical efficacy, several literature reports support the hypothesis that induction of tumor antigen specific T cell responses is important in controlling cancer. Furthermore, there are examples of other cancer vaccine candidates targeting the E6 and/or E7 proteins achieving significant clinical efficacy in patients with cervical or vulvar intraepithelial neoplasia, yet the CTL responses achieved in such studies were lower than those observed in the current VGX-3100 study.

Furthermore, in October, 2012, we reported that the immune responses generated in this study displayed a powerful killing effect on cells changed by HPV into precancerous dysplasias. These results appeared in the peer-reviewed journal, Science-Translational Medicine, in an article entitled, "Immunotherapy against HPV 16/18 generates potent Th1 and cytotoxic cellular immune responses." This desirable effect may ultimately contribute to the regression or elimination of cervical dysplasia and cervical cancer. Furthermore, 91% of patients who developed T cell responses showed the presence of CD8 T cells capable of this type of killing activity. Direct killing by CTLs was observed in all vaccinated subjects (6 of 6) in the 6 mg cohort.

Antibody responses to E6 and E7 antigens were also measured. Specific antibody responses to tumor antigens can function as an important surrogate potency marker for determining the immunogenicity of a vaccine, i.e. the ability of a vaccine to induce an immune response. Antibodies were generated against all four antigens, as tested by the enzyme-linked immunosorbent assay (ELISA). In the 6 mg cohort, antibody responses were observed in five of six subjects (83%). Overall, 100% of the study participants (18 of 18) reported antibody positivity to at least two vaccine antigens, and 94% (17 of 18) reported positivity to three antigens; 56% (10 of 18) were positive to all four antigens.

In March 2011, we initiated a randomized, placebo-controlled, double-blind phase II study of VGX-3100 delivered using our CELLECTRA® intramuscular electroporation device in women with HPV Type 16 or 18 and diagnosed with, but not yet treated for, cervical intraepithelial neoplasia (CIN) 2/3. The women in the study received either 6 mg of VGX-3100 (the highest dose used in our phase I study) or a placebo using the CELLECTRA® in vivo electroporation device at months 0, 1, and 3. The study is assessing efficacy by measuring regression of cervical lesions from CIN 2/3 to CIN 1 or normal in the treated versus control subjects. Immunological responses will be measured in this clinical study to assess the ability of this therapy to generate strong T cells in a larger, controlled study. Safety is also being assessed (ClinicalTrials.gov NCT01304524).

Therapeutic HPV Vaccine-VGX-3100 +DNA-Based IL-12 Cytokine
Cervical Cancer and Head and Neck Cancer
In the first half of 2014 Inovio expects to initiate two phase I/IIa clinical studies. These studies will assess immunogenicity (immune response characteristics) and safety of INO-3112 (VGX-3100 in combination with a DNA-based

IL-12 cytokine) – one in cervical cancer patients and the other in head/neck cancer patients. We added our DNA-based IL-12 immune activator to VGX-3100 for these cancer studies because our HIV vaccine clinical study (HVTN-080) showed that the addition of IL-12 to our DNA vaccines can enhance the activation of CD8 T cells. We plan to also use our DNA-based IL-12 cytokine in other new cancer studies as well. Trial protocol details for INO-3112 studies have not been disclosed.

Prostate Cancer Therapeutic Vaccine-INO-5150

The development of a new treatment for prostate cancer would be a significant medical advance given that present treatment options (surgery, radiation and hormone deprivation), while somewhat effective, all carry deleterious side effects and often do not confer long-term cure. Across the United States, there were 238,000 new cases of prostate cancer and more than 29,000 deaths in 2013.

In January 2011, we announced the publication of a scientific paper in the journal Human Vaccines detailing potent immune responses in a pre-clinical study of our SynCon® vaccine for prostate cancer targeting two antigens, prostate specific antigen ("PSA") and prostate specific membrane antigen ("PSMA"). While current prostate cancer therapies target single antigens, in this study we tested the hypothesis in mice that multiple antigens administered with Inovio's electroporation- delivery technology would improve the breadth and effectiveness of a prostate cancer therapeutic vaccine.

This study, conducted by our scientists and collaborators, is described in the published paper entitled, "Co-delivery of PSA and PSMA DNA vaccines with electroporation induces potent immune responses." The SynCon® vaccine evaluated in this study was generated by the creation of PSA and PSMA synthetic consensus immunogens based on human and macaque sequences, which enabled the amino acid sequences of the antigens to differ slightly from the native proteins associated with prostate cancer in humans. In humans, this difference may help overcome self-tolerance of cancer cells displaying these prostate-related proteins and enable the generation of an anti-tumor immune response. Mice received two immunizations of highly optimized vaccine delivered by electroporation. Immunogenicity was evaluated one week after the second vaccination. The resultant data showed the induction of strong PSA and PSMA-specific cellular immune responses and also significant antigen specific seroconversion, illustrating that both humoral and cellular immune responses can be generated by this approach.

In September, 2013, Roche exclusively licensed this SynCon® vaccine in conjunction with the use of Inovio's CELLECTRA® electroporation technology for this vaccine as part of a broader partnership agreement with Inovio. We expect that a phase I study of this vaccine will be initiated in the first half of 2014. Roche is paying for all costs associated with the development of this vaccine. As a part of this license agreement, Roche is also funding Inovio to design and test additional vaccine candidates to treat prostate cancer.

hTERT Therapeutic Vaccine-INO-1400

In July 2013, Inovio announced that its hTERT (human telomerase reverse transcriptase) DNA cancer vaccine administered with Inovio's CELLECTRA® adaptive electroporation delivery technology generated robust and broad immune responses, broke the immune system's tolerance to its self-antigens, induced T cells with a tumor-killing function, and increased the rate of survival in pre-clinical studies. Because abnormally high levels of hTERT expression are found in 85% of human cancers, INO-1400 holds the potential to perform as a "universal" cancer therapeutic based on these early but unprecedented results. Inovio plans to advance INO-1400 into clinical trials in 2014 to treat breast, lung and pancreatic cancers expressing the antigen hTERT.

Infectious Disease Synthetic Vaccines

Hepatitis B Virus-INO-1800

Although an effective preventive vaccine against hepatitis B virus (HBV) infection has existed for over three decades, HBV remains a major epidemic, especially among people of Asian and African descent. The World Health Organization estimates that 2 billion people globally have been infected with HBV, with over 350 million people chronically infected with the virus and at risk of developing cirrhosis or liver cancer. It is estimated that upwards of 1.4 million people in the US are infected with the virus. Currently, the only therapies available for chronically infected individuals are interferon-a and nucleoside analog treatments, which function by controlling viral replication but unfortunately do not clear infection. Interferon can prevent viral replication in only 30% of patients and does so with undesirable side effects.

Liver cancer is the second most common cause of death from cancer worldwide, killing most patients within five years of diagnosis. About 782,000new cases arise each year. One of the major causes and risk factors for liver cancer is infection by

hepatitis B. Chronically infected individuals may develop a permanent scarring of the liver (a condition called cirrhosis). Liver cirrhosis can evolve into hepatocellular carcinoma, which claims 746,000 lives annually.

In November 2012, we announced data indicating that our synthetic HBV therapeutic vaccine generated strong T cell responses that eliminated targeted liver cells in mice. Results from this pre-clinical study appeared in the peer-reviewed journal, Cancer Gene Therapy, in an article entitled, "Synthetic DNA immunogen encoding hepatitis B core antigen drives immune response in liver."

In this study, Inovio developed a synthetic DNA vaccine which is encoded for the HBcAg antigen and represents a consensus of the unique HBcAg DNA sequences of all major HBV genotypes (A through E). When delivered by electroporation, researchers first demonstrated that this vaccine elicited strong HBcAg-specific T cell and antibody responses in the periphery (outside of the liver) by ELISpot, ICS and cell proliferation assays. Researchers observed that the vaccination could also induce antigen-specific CD8 and CD4 T cells that produced both IFN-y and TNF-a in the liver, indicating a strong vaccine-induced T cell response was also present in the liver.

Furthermore, study researchers found the vaccine-specific T cells exhibited a killing function, and could migrate to and stay in the liver and cause clearance of target cells without any evidence of liver injury. Taken together, this is the first study to provide evidence that intramuscular immunization can induce killer T cells that can migrate to the liver and eliminate target cells.

In September, 2013, Roche exclusively licensed this SynCon® vaccine in conjunction with the use of Inovio's CELLECTRA® electroporation technology for this vaccine as part of a broader partnership agreement with Inovio. We are completing pre-clinical work associated with this vaccine and expect that a phase I/IIa study of this vaccine will be initiated in early 2015. Roche is paying for all costs associated with the development of this vaccine.

Hepatitis C Virus (HCV) Therapeutic Vaccine

Hepatitis is a disease characterized by inflammation of the liver. HCV is a major cause of acute hepatitis. HCV is spread primarily by direct contact with human blood, the major causes worldwide being the use of unscreened blood transfusions and re-use of needles and syringes that have not been adequately sterilized. As many as 75% -85% of newly infected patients may progress to develop chronic infection. Of those with chronic liver disease, 5% - 20% may develop cirrhosis. About 1%-5% of infected people may die from the consequences of long term infection (due to liver cancer or cirrhosis). Globally, an estimated 150 million people are chronically infected with HCV, which represents a reservoir sufficiently large for HCV to persist, and 3 to 4 million people are newly infected each year. In the US, while new incidences of HCV have dropped dramatically, an estimated 3.2 million Americans are chronically infected. People with chronic HCV infection face an increased risk of developing hepatocellular cancer, a difficult-to-treat cancer with a poor prognosis. More than 350,000 deaths each year are attributed to HCV-caused liver cirrhosis and hepatocellular cancer.

In April, 2010, we announced, along with our collaborators from Drexel University, Cheyney University, and the University of Pennsylvania, that we received a combined $2.8 million grant from the PA Commonwealth Universal Research Enhancement Program (CURE), to advance our proprietary synthetic vaccine to treat HCV using our CELLECTRA® electroporation delivery system. The grant funded pre-clinical studies using an expanded set of SynCon® immunogens to test the safety and effect on the immune system of our novel vaccines designed to treat persons who are chronically infected with HCV and have not responded to currently available therapies.

At the end of 2011 we announced positive pre-clinical results from this proprietary HCV vaccine, INO-8000, which were published in Molecular Therapy. This synthetic multi-antigen DNA vaccine covers hepatitis C virus genotypes 1a and 1b and targets the antigens NS3/4A, which includes HCV nonstructural proteins 3 (NS3) and 4A (NS4A), as well as NS4B and NS5A proteins. Following immunization, rhesus macaques mounted strong HCV-specific T cell immune responses strikingly similar to those reported in patients who have cleared the virus on their own. The responses included strong NS3-specific interferon-gamma (IFN-g) induction, robust CD4 and CD8 T cell proliferation, and induction of polyfunctional T cells. The T cell responses achieved with our proprietary, multi-antigen HCV DNA vaccine and CELLECTRA® delivery device were far superior to immunogenicity data generated by ChronTech. Importantly, we also observed functional T cells in the liver.

In October 2013, our partner VGX International launched a phase I study of this HCV vaccine. Under a 2011 development agreement, VGX International is fully funding IND-enabling, phase I, and phase II studies for this

vaccine. They are currently testing VGX-6150 (INO-8000 with DNA-based IL-28 cytokine) in phase I testing in Korea.

HIV Preventive and Therapeutic Vaccines

Since its discovery in 1981, AIDS has killed more than 36 million people. In 2011, there were roughly 2.5 million new cases of HIV diagnosed. In 2012, approximately 35 million people were living with HIV worldwide. Each year in the United

States, about 50,000 people become newly infected with HIV. At the end of 2010, 1.1 million people in the US were living with HIV.

Effective vaccines have been actively pursued for over 20 years, without success. HIV represents one of the most confounding targets in medicine. The virus' high mutagenicity (ability to mutate) has made effective vaccine development very challenging. Its outer envelope, swathed in sugar molecules, is difficult to attack, and HIV strikes the very cells that the immune system launches to thwart such an infection. Although several drugs (anti-retrovirals) are available to treat the patients once they are infected, vaccines are necessary to stop the spread of disease and perhaps reduce the need for anti-retroviral treatment.

After many years of rapid development and introduction of new anti-retroviral drugs for treatment of HIV infection, the introduction of new drugs to the market for treatment of HIV infection appears to be waning. Available drugs, despite several limitations, have set a high standard that must be met in terms of efficacy. However, there is still a significant need for better HIV therapies and patents are beginning to expire on early HIV drugs. For example, zidovudine and other early anti-retrovirals are already available as generic drugs. To maintain HIV-related revenue, as well as meet the needs of HIV-infected patients, pharmaceutical companies must develop new drugs with improved profiles, especially in terms of toxicity and more barriers to development of viral resistance. As a result, the medical and commercial needs are fueling continued interest in the development of new nucleosides (NRTIs), non-NRTIs, and protease inhibitors (PI) for treatment of HIV infection.

Noting that many long-term survivors have high counts of killer CD8 T cells, the HIV vaccine field has turned to stimulating the immune system to generate those cells. Recent HIV vaccine candidates adopted the use of an adenovirus or a common human cold virus that had been genetically modified to contain code for HIV antigens to prevent viral replication. These vaccines have proven to not be effective. We believe a different approach is needed to develop an effective vaccine for HIV. More recently the RV-144 trial, which employed an ALVAC™ (canary pox) vaccine prime followed by a protein vaccine boost, demonstrated 30% efficacy in preventing acquisition of infection amongst the vaccinated population compared to the control group. Although the efficacy was relatively modest, the finding has for the first time showed that a vaccine may be able to combat spread of HIV and has spurred the development of newer vaccine candidates.

In October 2009, along with the HIV Vaccines Trial Network (“HVTN”), we initiated a phase I study (HVTN-080) of PENNVAX®-B (with and without a DNA cytokine, DNA IL-12) delivered with electroporation using the CELLECTRA® delivery device in healthy, uninfected individuals. This randomized, double-blind, multi-center study was sponsored by the NIAID, an agency of the National Institutes of Health (the “NIH”), and conducted by the NIAID-funded HVTN, and vaccinated 48 healthy, HIV-negative volunteers at several clinical sites to assess safety and levels of immune responses.

Of the 48 total volunteers, eight subjects received a placebo, 10 subjects received a 1 mg dose of PENNVAX®-B vaccine, and 30 subjects received a 1 mg dose of PENNVAX®-B along with IL-12 DNA. All volunteers received vaccine or placebo administered with electroporation at months 0, 1, and 3. T-cell immune responses were detected using a validated flow cytometry-based intracellular cytokine staining (ICS) assay at the HVTN core immunology laboratory at the Fred Hutchinson Cancer Research Center in Seattle, WA.

We reported final data from this study in September 2011. These data indicate that antigen-specific T-cell responses were generated by the vaccine in a majority of subjects. Overall, either CD4 or CD8 or both T-cell responses were observed against at least one of the vaccine antigens in 83.3% (30 of 36) of evaluated subjects after three vaccinations using electroporation. The response rate increased to 88.9% (24 of 27) of evaluated subjects after three vaccinations with electroporation plus the IL-12 cytokine gene adjuvant. The investigators in this study concluded that PENNVAX®-B + IL-12 plasmid delivered via electroporation led to frequencies and magnitudes of cellular immune responses equal to or greater than those reported from current vector-based HIV vaccines such as adenovirus or traditional DNA vaccination without electroporation. These results represent best-in-class immune responses that have not been observed with other platforms.

Other specific results included:

- Antigen-specific CD4 T cell responses were generated by the vaccine in 80.8% of evaluated vaccine recipients (21 of 26).
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Significantly strong antigen-specific CD8 T cell responses were also generated by the vaccine in 51.9% of evaluated vaccine recipients (14 of 27).

- In an assessment of immune response durability out to six months post dose 3, 53.6% (15 of 28) of the subjects maintained positive CD4 T cell responses and 42.9% (12 of 28) of the subjects maintained positive CD8 T cell responses out to six months.
- Compared to the previously conducted HVTN 070 phase I study, which assessed PENNVAX®-B with cytokine adjuvant IL-12 at double the dose, with four vaccinations, but without electroporation delivery, response rates in HVTN 080 with electroporation were significantly higher for both CD4 responses (40.7%) and CD8 T cell responses (3.6%). Samples from eight placebo recipients and pre-vaccine samples from vaccine recipients were also tested and were negative for both CD4 T cell responses and CD8 T cell responses.

- PENNVAX®-B delivered using the CELLECTRA® intramuscular electroporation delivery device with or without IL-12 was safe and generally well tolerated. There were no vaccine-related serious adverse events. Reported adverse events and injection site reactions were mild to moderate and required no treatment.

This data was published in July 2013 in the peer-reviewed Journal of Infectious Diseases in the article, “Safety and comparative immunogenicity of an HIV-1 DNA vaccine in combination with plasmid IL-12 and impact of intramuscular electroporation for delivery.”

A second clinical study testing PENNVAX®-B in a therapeutic setting, conducted in collaboration with the University of Pennsylvania, started in 2011. The HIV-001 open label, phase I study enrolled 12 adult HIV-positive volunteers to assess safety and levels of immune responses generated by Inovio's PENNVAX®-B vaccine delivered with its CELLECTRA® electroporation device. Study volunteers were required to be on a highly active antiretroviral therapy (HAART) regimen, have undetectable plasma viral load (<75 copies/mL), and have CD4 T lymphocyte counts above 400 cells/μL with nadirs over 200 cell/μL. Twelve (12) eligible subjects were administered a four dose series (day 0, weeks 4, 8 and 16) of PENNVAX®-B containing 3 mg of DNA/dose via intramuscular electroporation.

In March 2012, we reported that there were no significant adverse events or vaccine related grade 3 or 4 adverse events noted in the study and the vaccine was found to be generally well tolerated. Reported injection site reactions were mild to moderate and did not require treatment to resolve.

T cell responses were measured using a validated ELISpot assay at the U Penn Immunology Core Facility. Overall, significant vaccine-specific T cell responses were observed in 75% (9 out of 12) of subjects against at least one of the three vaccine antigens (gag. pol, or env) following vaccination. Fifty percent of the subjects (6 out of 12) had strong vaccine induced antigen-specific responses above the pre-vaccination levels to at least two of the antigens. Importantly, the responses induced by vaccination were predominantly antigen-specific (i.e. gag, pol and env) CD8 T-cells, which are considered to be paramount in clearing chronic viral infections and an important measurement of the performance of a therapeutic vaccine. These results are in stark contrast to previously reported studies with other DNA vaccines delivered without electroporation that yielded poor overall T cell immune responses.

We believe these positive interim results, which showed that a DNA vaccine was able to generate robust T cell immune responses in people chronically infected with HIV, demonstrate the potency of our synthetic vaccine technology platform and raise the potential for the development of therapeutic vaccines against HIV. We are analyzing the final data with the intent to prepare a paper for submission to a peer-reviewed scientific publication.

The valuable proof of concept data achieved with the PENNVAX®-B clinical studies provided a strong and positive basis with which to advance our HIV vaccine development program via an HIV Vaccine Design and Development Teams (HVDDT) contract for PENNVAX®-GP (discussed below).

In September 2010, the United States Military HIV Research Program (MHRP) initiated a phase I trial (RV262) using one of our prophylactic HIV vaccines in a unique prime-boost strategy. This program was developed to protect against diverse subtypes of HIV-1 prevalent in North America, Europe, Africa, and South America. The study is being conducted by the United States MHRP through its clinical research network in the US and East Africa. The prime is a plasmid synthetic vaccine, Inovio's PENNVAX®-G, and the boost is a virus vector vaccine, Modified Vaccinia Ankara-Chiang Mai Double Recombinant (MVA-CMDR). Together, the vaccines are designed to deliver a diverse mixture of antigens for HIV-1 subtypes A, B, C, D and E. The study will test PENNVAX®-G delivered with electroporation in conjunction with the MVA-CMDR boost. The NIAID is sponsoring the study, which is intended to enroll 92 total participants and assess safety and immune responses. The study is being conducted in two parts. Part A enrolled 12 subjects in the US (open label study) and is complete. This study confirmed the safety profile of the vaccine and opened the door to initiate the larger placebo controlled international study. Part B has completed the targeted enrollment of 80 subjects in three African countries (Kenya, Tanzania and Uganda).

Based on the proof-of-concept established with PENNVAX®-B, we were awarded a contract under the NIAID's HIV Vaccine Design and Development Teams program to advance a more optimized preventive HIV DNA vaccine, PENNVAX®-GP, delivered using intradermal electroporation delivery. The contract provides up to $25.3 million of funding over seven years, including a five-year base period and follow-on option years. The funding and development program covers pre-clinical optimization, immunogenicity and challenge studies in animal models, IND-enabling toxicology studies, cGMP (current good manufacturing practices) manufacturing of all components of the synthetic vaccine and intradermal CELLECTRA® electroporation device, and the conduct of a phase I human clinical trial.

cGMP manufacture of the PENNVAX®-GP constructs to support clinical trials will be conducted at the manufacturing facility of our affiliate, VGX International, Inc. (“VGX Int'l”).

We expect that the HVTN will launch the phase I study of PENNVAX®-GP in the second half of 2014.

HIV remains a challenging and tremendously important area of medical research, and we value the NIH's support to further evaluate the immunogenicity and efficacy of our electroporation delivery system and novel preventive HIV vaccine candidate.

Avian Influenza Vaccines

Influenza is one of the most communicable diseases and typically affects children and elderly most severely. Complications from influenza cause more than 200,000 hospitalizations and cause between 3,000-49,000 deaths each year in the United States alone, according to the Centers for Disease Control. The world is annually subjected to two influenza sessions (one per hemisphere), between three and five million cases of severe illness, and up to 500,000 deaths. A pandemic occurs every ten to twenty years, which infects a large proportion of the world's population and can kill tens of millions of people as the “Spanish Flu” did in just two years (50-100 million deaths during 1918-1919). New influenza viruses are constantly produced by mutation or reassortment, and can develop resistance to standard antiviral drugs. The H5N1 flu virus has been spreading from Asia despite the belief that it was under control immediately after outbreaks there in 2004. In 2005, there were reports of H5N1 in wild birds in Europe. In 2006, there were reports of an H5N1 strain in wild birds and poultry in Africa and the Near East. According to the World Health Organization, the H5N1 bird flu has infected 650 people and resulted in 386 deaths (approximately 60% death rate) in 15 countries since 2003 (WHO, February 2014). While H5N1 has never been passed person-to-person and has not spread widely, one concern is the potential for the lethal H5N1 to “reassort” with another of the influenza sub-types that have been prone to spread more rapidly in humans, possibly creating a more dangerous influenza strain. Through 2006, over 140 million birds had been killed and over $10 billion spent to try to contain H5N1 avian influenza, which has a death rate of 90%-100% in birds.

Our VGX-3400X candidate targets H5N1. The vaccine consists of three distinct DNA plasmids coded for a consensus hemagglutinin (HA) antigen derived from different H5N1 virus strains; a consensus neuraminidase (NA) antigen derived from different N1 sequences; and a consensus nucleoprotein (NP) fused to a small portion of the m2 protein (m2E) based on a broader cross-section of influenza viruses in addition to H5N1 and H1N1.

In our first proof of principle study of our universal flu vaccine program, VGX-3400X was delivered with intramuscular electroporation using our CELLECTRA® electroporation device. The primary objectives of this clinical trial were to assess safety and tolerability. The secondary objective was the measurement of antigen-specific T cell and antibody responses, including binding and hemagglutination inhibition (HAI) responses, i.e. a measure of protection, against multiple strains of H5N1 influenza.

The study assessed a total of 60 healthy volunteers, 30 in the US and 30 in Korea (in a separate, parallel clinical trial sponsored by Inovio affiliate VGX International). Three dose cohorts of 10 subjects were each given two injections of 0.2 mg, 0.67 mg, or 2.0 mg of each plasmid at months 0 and 1.

In a report in July, 2011, of interim data, VGX-3400X was found to be generally safe and well tolerated at all dose levels. There were no vaccine-related serious adverse events. Reported adverse events and injection site reactions were mild to moderate and required no treatment.

We tested for antibody responses against the target antigens and observed high levels of binding antibodies in 26 of 27 evaluated subjects (96%). Antibodies were generated against all three antigens, as tested by the enzyme-linked immunosorbent assay (ELISA). Positive antibody responses persisted to seven months, the latest time point tested.

In testing for HAI responses against the Vietnam (A/H5N1/1203/04) strain, 3 of 27 subjects (11%) showed HAI titers greater than 1:40, which is considered to be an indicator of protection against influenza in humans. Two of the three subjects with HAI titers exceeding 1:40 against the Vietnam strain also demonstrated greater than 1:40 titers against the Indonesia (A/H5N1/5/2005) strain, demonstrating cross-reactive responses in these volunteers.

Significantly, antigen-specific cytotoxic T-lymphocyte (CTL) responses were also observed against all three antigens (HA, NA and NP). After two vaccinations, 13 of 18 vaccinated subjects (72%) from the first two cohorts developed strong CTL responses to at least one of the vaccine components. After cohort 3 samples were analyzed, 20 of 29 vaccinated subjects (69%) in all 3 cohorts developed strong CTL responses to at least one of the vaccine components. These positive T cell responses were measured up to seven months after the first vaccination. Generation of influenza antigen-specific T cell responses is believed to be important for generating universal, long-lasting immunity against influenza as well as to generate a stronger immune response against flu in elderly people.

In another component of the study, participants received a booster vaccination using just the H5 HA vaccine component of VGX-3400X delivered using intradermal (rather than intramuscular) electroporation. The intradermal (ID) part of the study was the first flu study using ID electroporation delivery in humans. ID electroporation delivers our SynCon® vaccines into skin, which contains large amounts of immune cells such as dendritic cells and macrophages considered most important for generating protective antibodies. Our new ID electroporation device uses a patented miniaturized needle array which creates

electroporation conditions uniquely optimized for skin delivery. The goal of this booster vaccination was to determine if ID delivery of the H5 HA construct can increase HAI titers beyond those achieved by the initial intramuscular vaccinations. Twenty-two participants received the ID booster vaccination.

Immune response data measured one month after this boost were reported in November 2011. Ten of 20 subjects (50%) exhibited a four-fold or greater rise in geometric mean titers (GMT) in the HAI assay (ranging from 1:20 to 1:80 HAI titers) against the Clade 1 A/Vietnam/1203/04 strain. Significantly, a four-fold or greater rise in GMT titers against five other Clade 2 (Clade 2.1, 2.2; 2.3.2; 2.3.4) and Clade 0 H5N1 viruses was also noted in 10-25% of the vaccinated subjects, further demonstrating cross-reactive immune responses in these volunteers. One subject displayed greater than 1:40 HAI titers against all six different H5N1 viruses tested. ID vaccination was found to be generally safe and well tolerated.

HAI measurements from the blood of a vaccinated subject are used to assess the generation of protective antibody responses. A four-fold rise in HAI titers (compared to pre-vaccination) is considered to be an important indicator of immune activation. Generating an HAI titer of 1:20 is generally regarded as a positive vaccine response, with a titer of 1:40 or higher in the blood of vaccinated subjects generally associated with protection against influenza in humans.

Seventeen subjects boosted with the minimally invasive ID vaccination were subsequently given a second ID booster vaccination. In May 2012 we reported that 100% and 89% of vaccinated subjects demonstrated high-titered binding antibody responses against the more common Clade 1 A/Vietnam/1203/04 and Clade 2 A/Indo/5/05 strains, respectively, demonstrating vaccine-specific immune activation. We also tested the vaccine's ability to generate protective HAI responses against six distinct H5N1 virus strains (Clades 0, 1, 2.1, 2.2, 2.3.2 and 2.3.4), representing all major genetic branches of the H5N1 genetic tree. Of the 17 subjects who completed the full immunization regimen:

- Eight of 17 (47%) immunized subjects had an HAI titer of 1:40 or higher against at least one of the tested H5N1 viruses.
- Twelve of 17 (71%) vaccinated subjects had an HAI titer of 1:20 or higher against at least one H5N1 strain.
- Seven of 17 (41%) had an HAI titer of 1:40 or higher against the Clade 2.2 A/Turkey/1/05 strain.
- Five of 17 vaccinated subjects (29%) displayed an HAI titer of 1:20 or higher against at least three different H5N1 viruses tested.
- In an unprecedented result, two vaccinated subjects demonstrated an HAI titer of 1:20 or higher against all six strains tested.

Hemagglutination inhibition (HAI) measurements from the blood of a vaccinated subject are used to assess the generation of protective HA antibody responses generated by a vaccine. All HAI titer data are presented in geometric mean titers (GMT). Generating an HAI titer of 1:20 is generally regarded as a positive response to the vaccine; a titer of 1:40 or higher in the blood of vaccinated subjects is generally associated with protection against seasonal influenza viruses and has been observed in multiple subtypes.

Although a number of companies have well-developed avian influenza programs and lead vaccine candidates have entered into national stockpiles (US and EU), we believe there exists a need for broadly protective and easily scalable technologies to prepare for the as yet unknown target presented by the next form of avian influenza. Our SynCon® technology provides protection from known avian influenza viruses (in animal studies) and has also shown the ability to protect against newly emergent, unmatched strains.

Responding to the 2013 H7N9 influenza outbreak, Inovio completed the design, optimization, and manufacturing of an H7N9 DNA vaccine within two weeks. A pre-clinical study of this DNA vaccine showed that 100% of vaccinated mice were protected against sickness and death when they were challenged with a lethal dose of H7N9 virus. This study further highlights the ability of Inovio's SynCon® vaccine to create cellular immune responses that could reduce the severity of H7N9 infection in a person that acquires the virus and limit the spread of the virus in a pandemic setting. The data has been compiled into a manuscript and it has been submitted for publication.

We are seeking additional grant funding to advance this program further.

Universal Influenza Vaccine

Conventional vaccines are strain-specific and have limited ability to protect against genetic shifts in the influenza strains they target. They are therefore modified annually in anticipation of the next flu season’s new strain(s). If a significantly different, unanticipated new strain emerges, such as the 2009 swine-origin pandemic strain, then the

current vaccines provide little or no protective capability. In contrast, we believe that our design approach to characterize a broad consensus of antigens across variant strains of each influenza sub-type creates the ability to protect against new strains that have common genetic roots, even though they are not perfectly matched. By formulating a single vaccine with some or all of the key sub-types, protection may be achieved against seasonal as well as pandemic strains such as swine flu or pandemic-potential strains such

as avian influenza noted above. We are focused on developing DNA-based influenza vaccines able to provide broad protection against known as well as newly emerging, unknown seasonal and pandemic influenza strains.

Instead of targeting a specific strain or strains, we have developed a universal vaccine strategy to deal with the ever-changing flu threats. Using our SynCon® process, our scientists designed synthetic vaccines targeting an optimal consensus of HA, NA, and NP proteins derived from multiple strains of each of the Type A sub-types H1N1, H2N2, H3N2 (these three influenza sub-types having been responsible for the majority of seasonal and pandemic influenza outbreaks in humans during the last century), as well as H5N1. In theory, consensus HA vaccine constructs from each sub-type, delivered using our electroporation device, could potentially protect vaccinated subjects from 90-95% of all human seasonal and pandemic influenza concerns. Additionally, we have also developed an optimal consensus of HA sequences derived from influenza Type B strains. Type B is one of three components of current seasonal influenza vaccinations. Thus, using our SynCon® constructs, we have now developed vaccine elements that can target both pandemic-risk (H5N1, H7N9, H1N1) as well as seasonal influenza strains (H3N2, H1N1, influenza B).

Moreover, using our approach the vaccines might not have to be administered annually after the first few priming sessions. Rather, the same combination could be used to boost the immune system every few years.

In September 2012, Inovio announced that an interim analysis of a SynCon® universal H1N1 influenza vaccine showed that it generated protective HAI titers against some of the most prevalent strains of H1N1 influenza from the past 100 years in a phase I clinical trial. The open label phase I study evaluated two synthetic H1N1 hemagglutinin (HA) plasmids designed to broadly protect against unmatched influenza strains within different branches of the H1N1 subtype. These plasmids were delivered in healthy adults with Inovio's CELLECTRA® intradermal electroporation device up to three times. The delivered vaccine was well tolerated; reported adverse events and injection site reactions were mild to moderate and required no treatment.

Researchers exposed blood samples from the vaccinated subjects to each of the nine key H1N1 viruses in circulation over the last 100 years: eight were H1N1 strains used to formulate the seasonal vaccines of the last 25 years; one was the H1N1 strain that caused the 1918 Spanish flu. These unmatched influenza strains were used to assess the generation of hemagglutination inhibition (HAI) titers meeting or exceeding 1:40. Demonstrating Inovio's synthetic vaccine's broad cross-reactive coverage, a significant percentage of subjects immunized with Inovio's SynCon® vaccine had an HAI titer of 1:40 or higher against each of the nine H1N1 strains tested, ranging from a 30% response rate to the A/Brisbane/59/07 strain to a 100% response rate to the A/Beijing/262/95 strain. The benchmark for the current licensed seasonal flu vaccines, which are based on matching the vaccine HA sequence to that of the circulating strain, is to have greater than 65% of vaccinees generate an HAI titer of 1:40 or higher against the matched vaccine strain.

By design, Inovio's SynCon® universal flu vaccine is not matched to any single virus and was not matched to any of the strains tested in this study. The vaccine recipients generated protective HAI responses against the H1N1 A/South Carolina/1/18 strain from the 1918 Spanish flu as well as all the H1N1 strains which were part of the annual seasonal trivalent inactivated flu vaccines (TIV) since 1986, including: A/Taiwan/1/86, A/Texas/36/91, A/Bayern/07/95, A/Beijing/262/95, A/New Caledonia/20/99, A/Solomon Islands/03/06, A/Brisbane/59/07, A/California/07/09. The HAI titers in the positive responders ranged from 1:40 to greater than 1:1280.

Compared to the seasonal TIV (trivalent influenza vaccine)-immunized control group, which is matched to the current H1N1 seasonal flu strain (A/California/07/09), those immunized with Inovio's vaccine generated a higher or similar percentage of positive HAI titer responders against all of the strains except for A/California/07/09. As anticipated, the TIV recipients generated the best HAI titers against the matched strain, but did not generate vaccine-induced response rates against the unmatched strains.

Inovio is conducting optimization studies in animal models to further strengthen its H1N1 vaccine's potency against all strains, especially the current circulating strain, A/California/07/09, as well as to reduce the number of injections needed to generate protective responses against multiple strains.

In December 2012 we reported interim results of a phase I trial that showed that a single dose of our H1N1 universal SynCon® flu vaccine followed with a dose of a seasonal flu vaccine generated protective immune responses in 40% of trial subjects compared with a 20% response rate in elderly patients who received the seasonal flu vaccine alone. People over 65 years of age represent about 90% of annual influenza deaths in the US. Older people's immune systems typically mount much weaker protective immune responses to seasonal vaccines, often in only 10 to 20% of

this population. In younger adults, the same flu vaccines generate protective immune responses in at least 65% of the vaccine recipients. Other approaches, such as the use of higher vaccine doses and novel adjuvants, have not significantly improved the seasonal

vaccine's impact in the older population. Thus, there is a significant need for a new approach to provide better protection in this more vulnerable population.

With the vulnerability of the elderly in mind, this phase I study is evaluating the ability of Inovio's SynCon® vaccine alone, as well as in combination with the 2012 seasonal influenza vaccine, to generate protective levels of antigen-specific antibody immune responses in a greater proportion of the elderly population as well as to assess the potential for more universal protection against both matched and unmatched seasonal influenza strains.

In the trial, conducted at the University of Manitoba in Winnipeg, Canada, 50 healthy elderly patients were divided into three groups: one group of 20 subjects received a two-dose regimen of Inovio's H1N1 universal SynCon® flu vaccine delivered using Inovio's proprietary CELLECTRA® intradermal electroporation device 16 weeks apart; a second group of 20 subjects received one dose of Inovio's SynCon® vaccine delivered using electroporation followed by a dose of seasonal flu vaccine 16 weeks later; a third group of 10 subjects received placebo delivered by electroporation followed by a dose of the seasonal flu vaccine 16 weeks later. The study's objectives were to assess the tolerability, safety, and immune responses of these different vaccination regimens.

Serum samples from the vaccinated subjects were used to assess the generation of hemagglutination inhibition (HAI) titers meeting or exceeding a dilution of 1:40 to the current H1N1 seasonal flu strain (A/California/07/09). An HAI titer of 1:40 is the level recognized as a protective immune response against influenza in humans. Because of generally high HAI titer background rates to the A/California/07/09 strain, vaccine-specific, protective response rates were determined by assessing the number of patients in each group who had HAI titers greater than 1:40 and HAI titers at least 4-fold higher than the background value at the start of the trial. In reported interim data, vaccination with the H1N1 universal SynCon® flu vaccine followed with a dose of a seasonal flu vaccine generated protective immune responses in 40% (8 of 20) of trial subjects compared with a 20% (2 of 10) response rate in elderly patients who received the seasonal flu vaccine alone. We are analyzing the final data with the intent to prepare a paper for submission to a peer-reviewed scientific publication.

Finally, on our path to develop a universal seasonal vaccine we are completing tests in animal models of our vaccine constructs for A/H3N2 and Type B influenza. Our goal is to develop vaccines that can also generate HAI titers exceeding 1:40 against unmatched strains within the H3N2 and Type B subtypes. In January 2012, we reported that our synthetic vaccines for influenza Type A H3N2 and Type B achieved protective antibody responses in immunized animals against multiple unmatched strains.

In the study of Inovio's SynCon® H3N2 vaccine, investigators immunized small animals (mice and guinea pigs) with a synthetic vaccine designed to produce the influenza hemagglutinin (HA) antigen in the animals. Inovio investigators have to date tested blood samples from the animals for immune responses against unmatched strains from several clades of H3N2. (Like the branches of a tree, there are dozens of distinct strains within each of these clades). The animals immunized with the SynCon® H3N2 vaccine developed HI titers exceeding the 1:40 level commonly associated with protective immunity against several clades of H3N2 tested. These included strains circulating in the 2000-01, 2006-07, and 2008-09 influenza seasons, which had necessitated a change in the composition of the seasonal flu vaccine for those years. Additional animal testing of the remaining few H3N2 clades continued through 2012 and was to include a new strain, H3N2v (A/Indiana/10/2011 X203), which was selected in January 2012 by the CDC as a pandemic vaccine target.

Similarly, in the study of Inovio's SynCon® Type B vaccine, investigators tested blood samples from immunized mice for immune responses against multiple, unmatched strains of Type B influenza. All the animals immunized with the SynCon® Type B vaccine developed HI titers exceeding the 1:40 level against all of the strains of Type B tested, including those circulating and consequently a part of the vaccine formulation in 2001-02, 2008-09, and 2011-12. Type B influenza mutates more slowly than Type A, but enough to preclude lasting immunity. Type B influenza can lead to life-threatening complications, including pneumonia, in young children, persons over 50, those with chronic diseases (e.g. diabetes) or suppressed immune systems, and others at risk for complications.

We are seeking additional grant and/or partner funding to advance this program further.

Malaria

Malaria continues to present a major healthcare challenge in the developing world and has been the focus of much attention by global public health agencies. It is a deadly disease that still kills approximately 627,000 people each year. Children under the age of five residing in Africa are affected most by this disease. Development of an effective

vaccine against Plasmodium falciparum has been a challenge. The parasite undergoes several stages of development during its life cycle and presents different potential target antigens at each stage as it passes through its human and mosquito hosts.

In January 2013, the PATH Malaria Vaccine Initiative (MVI) and Inovio announced a follow-on collaboration to advance malaria vaccine development and new vaccination delivery technologies. Researchers will test whether a novel vaccine approach that combines genetically engineered DNA with electroporation delivery could induce an immune response in humans that protects against malaria parasite infection.

Our vaccine candidate targets the pre-erythrocytic stage of the parasite and focuses on induction of both humoral and cellular responses against multiple target antigens. This approach is intended to help prevent infection of liver cells and to further clear those cells that, despite the antibody response, become infected. By targeting the parasite during the first days after infection, this type of vaccine may prevent the onset of malaria symptoms and further inhibit spread of the disease.

This follow-on agreement for clinical development builds on a 2010 research and development collaboration between Inovio and MVI. Inovio researchers and their academic collaborators developed novel DNA plasmids targeting multiple malaria parasite antigens and conducted studies in rodents to demonstrate induction of broad immune responses. The success of these studies resulted in an expanded collaboration in which further testing demonstrated potent T cell and antibody responses in other animal models. As published in Infection & Immunity in 2013, Inovio's SynCon® malaria vaccine generated robust and long-lasting T cell responses that exhibited the functional ability to kill and eliminate malaria-infected cells in small animals and non-human primates. Researchers also found vaccine induced CD-8+ "killer T cells" in the liver, which is essential for rapid elimination of liver-stage malaria parasites. Inovio is prepared to translate this program into a clinical trial, but the actual timing of the human study is dependent upon proper and timely funding from MVI or other funding agencies.

Cytomegalovirus

Cytomegalovirus (CMV) is a member of the herpes family of viruses that spreads from one person to another through the transfer of body fluids. CMV causes a wide variety of infection and illness in healthy adults, in those with compromised immune systems (such as HIV patients), and in pregnant women who can pass the infection to their unborn child (congenital CMV) and thus cause infant death and congenital abnormalities. It is the most common viral infection in solid organ transplant recipients and is considered a causative factor in certain cancers, inflammatory diseases, and cardiovascular/pulmonary diseases. CMV infects approximately 60%-95% of adults worldwide. According to the CDC, among every 100 adults in the US, 50-80 are infected with CMV by the time they are 40 years old.CMV is the most common viral infection that infants are born with in the United States. The genetic complexity of CMV has inhibited the advancement of vaccines for this disease and, despite 50 years of research, this disease is a medical problem that has yet to see a vaccine or cure. The US Institute of Medicine and US National Vaccine Program offices have ranked CMV with the highest priority in terms of potential healthcare dollar savings and improvement in "quality adjusted life years." Although healthy people usually have few symptoms at the time of initial infection, after infection the virus remains in a latent state in the body for the rest of a person's life. The virus can then be transmitted and cause infection through organ donation, or latent virus can become reactivated and cause symptomatic disease.

In November 2012, we announced that our multiple synthetic vaccine constructs for cytomegalovirus (CMV) induced robust T cells in mice, demonstrating the potential for a SynCon® DNA vaccine to treat this disease. The results from this pre-clinical study appear in the peer-reviewed journal Human Vaccines & Immunotherapeutics in an article entitled "Vaccination with synthetic constructs expressing cytomegalovirus immunogens is highly T cell immunogenic in mice."

In this study, Inovio researchers first investigated a novel panel of ten CMV immunogens comprised of mainly surface-associated proteins based on promising prior clinical and pre-clinical data that had been previously shown to be important for inducing cellular immune responses in CMV infection. To maximize the potential for broadly-reactive immunity, Inovio researchers created SynCon® vaccines for each of the target proteins based on amino acid consensus sequences from multiple variant CMV clinical strains and excluded those from potentially divergent, highly passaged lab-adapted strains.

Researchers observed that vaccination with each CMV construct was highly T cell immunogenic in preclinical proof-of-concept mice studies, generating robust and broad T cell responses as extensively analyzed by the T cell ELISPOT assay. Each antigen produced responses against at least four and as many as 28 different regions of the antigen and, importantly, responses from both CD8 and CD4 T cells were observed. This increased diversity and magnitude of cellular responses may be critical for effectively mitigating CMV infection and disease in the

transplantation setting.

These data demonstrate that Inovio's next-generation SynCon® DNA vaccine technology is effective at inducing CD8 T cell responses specific to CMV, in contrast to prior strategies that induced mainly CD4-dominant responses. Additionally, a majority of epitopes identified for the gB, gH, and gL antigens also contained HLAs that have previously been reported to contribute to the suppression of viremia and amelioration of disease. Further ongoing work will determine how many of the 10

antigens will be selected and taken further for clinical development as well as assess the induction of antibody responses to prevent CMV infection.

Synthetic Vaccines for Biodefense and Biosecurity

A number of infectious agents that are relatively rare today are poised for an upsurge in incidence by either “natural” or terrorism-related means. For example, natural threats are posed by the influenza strain H5N1. At the same time, an engineered influenza virus for intentional release would pose a significant human threat.

Since 2001, the United States government has spent or allocated over a billion dollars in funding to address the threat of biological weapons. United States funding for bioweapons-related activities focuses primarily on research for and acquisition of medicines for defense. Biodefense funding also goes toward stockpiling protective equipment, increased surveillance and detection of biological agents, and improving state and hospital preparedness. The increase in this type of funding recently is mainly due to the Project BioShield Act adopted in 2004.

There are opportunities to secure development funding and for proof-of principle synthetic vaccine studies for biowarfare pathogens. Over the past five years, we have been successful at securing funding from the US government for such projects.

The company continues to actively pursue grant and contract funding from the NIH, Department of Defense and other government funding agencies as an important source of non-dilutive funding to support development of specific technologies that are broadly applicable across multiple product development programs in the areas of cancer, infectious diseases and biodefense. Based on various initiatives and with the support of NIH funding we are an active collaborator with the Department of Defense (U.S. Army) and continue research and development of DNA-based vaccines delivered via our proprietary electroporation system. Specifically, our projects are focused on identifying synthetic vaccine candidates with the potential to provide rapid, robust immunity to protect against bio-warfare and bioterror attacks as well as development of our electroporation based equipment.

In April 2012, we received a U.S. Department of Defense Small Business Innovation Research Grant to advance the development of a low-cost, non-invasive surface electroporation (EP) delivery device and test its utility in combination with our novel synthetic DNA vaccines against viruses with bioterrorism potential, including hanta, puumala, arenavirus and pandemic influenza. This project is a continuation of a first-stage DOD grant in 2011 that initiated Inovio's development of this skin delivery system.

In the first phase of this project, Inovio focused on optimizing the device design of its current minimally invasive surface EP device. In this second phase, the objective is to further advance and validate this device and the resulting immune responses in appropriate animal models. We will also investigate the development and manufacture of low-cost sterile disposables for the device and the possibility of integrating dermal injection capabilities into a combined inject/EP device platform.

Animal Health/Veterinary

VGX Animal Health, Inc. (VGX AH), a majority-owned subsidiary, is advancing the development and commercialization of LifeTide®, a plasmid-based growth hormone releasing hormone (GHRH) technology for swine. LifeTide® is one of only four DNA-based treatments approved for use in animals and is the only DNA-based agent delivered using electroporation that has been granted marketing approval (Australia and New Zealand). We are working on partnering and/or monetizing this program.

In September 2012, we announced that a study published in a leading peer-reviewed journal, the American Journal of Veterinary Research, showed that LifeTide® SW 1.0, an optimized version requiring only 20% of the dose of the licensed LifeTide® SW 5.0, demonstrated significant decreases in perinatal mortality rate, an increase in the number of pigs born alive, and an increase in the weight and number of pigs weaned compared with the control group. Additionally, there was a significant increase in the lifespan of the treated sows in the study. These findings provide further evidence of the potential of the plasmid-based GHRH technology to improve productivity and profitability for pig producers around the world.

We are developing a novel synthetic vaccine for foot-and-mouth disease (FMD) administered by our proprietary vaccine delivery technology. The FMD virus is one of the most infectious diseases affecting farm animals including cattle, swine, sheep and goats, and is a serious threat to global food safety. Once an area is exposed to FMD, livestock & dairy exports are ceased and herds are culled. For example, in a major FMD outbreak in the UK in 2001,

more than 4 million animals were slaughtered, resulting in more than $10 billion (USD) in economic losses. In a current FMD epidemic in South Korea, more

than 3.3 million animals, mostly swine, have been culled in an attempt to keep the disease from spreading. Today's FMD vaccines based on killed/inactivated viruses can actually cause FMD infection, so are only used regionally after an outbreak rather than for broad preemptive vaccination. Our synthetic DNA vaccine cannot cause the disease, providing a safe approach to potentially protect against FMD and reduce its serious impact on global food supply and commerce.

Because FMD can spread rapidly and beyond regional boundaries there is a need to develop vaccines that can simultaneously target different regional serotypes (subtypes) of FMD in a single vaccine. Our SynCon® vaccine constructs target four of the seven main FMD virus subtypes.

Due to the fear of inadvertent spread to farm animals, research with the live virus to test vaccine efficacy is heavily restricted to only a few government laboratories in the US. The investigators therefore developed a patented new proprietary neutralization assay (using a mock virus unrelated to FMD to assess the ability of the vaccine-induced antibodies to neutralize virus infection). In a follow-on investigation of the immune responses with the novel neutralization assay against the Asia strain, the vaccinated animals developed neutralizing antibody (NAb) titers averaging 90 after a single vaccination and increasing in magnitude to 191 after two vaccinations. For comparison, commercially available attenuated/killed FMD virus vaccines are able to protect swine with an NAb titer of 32-40. These results are the first report of a DNA vaccine producing high titers of neutralizing antibodies against FMD.

In a second large-animal study, sheep were vaccinated three times at 0, 5, and 10 weeks with a combination vaccine targeting either four subtypes (O, A, C, Asia), three subtypes (O, A, Asia), or a single subtype (Asia). The study investigators observed in the vaccinated animals high levels of seroconversion (production of antibodies specific to a particular antigen) and antibody titers (the actual level of antibody production; in this case, ranging from 1000 – 100,000) to all the vaccine subtypes after only one or two vaccinations. Importantly, the multi-subtype DNA vaccines targeting three or four subtypes simultaneously were able to induce equally strong levels of antibody titers compared to the single-subtype vaccines. Strong T cell responses (cumulatively > 1,500 SFU/million PBMC), which would potentially play a role in treating the disease, were also noted against the four different subtype antigens.

In September 2011, we entered into a Cooperative Research and Development Agreement (CRADA) with the United States Department of Homeland Security (DHS) Science and Technology Directorate Plum Island Animal Disease Center. This collaboration will evaluate the efficacy of our SynCon® vaccines for FMD in important animal models including cattle, sheep, and pigs.

Historical and Discontinued Studies

In May 2004, we announced a collaboration and license allowing Merck to use Inovio's earlier generation electroporation delivery technology in conjunction with certain DNA vaccines developed by Merck. Merck completed phase I clinical studies for two DNA vaccines but did not report results. As part of this license agreement, Merck paid Inovio milestone payments and funded all clinical development costs. Although this agreement has not been terminated, no other studies are planned from this license.

In 2013, our collaborator ChronTech Pharma AB reported data from its small phase II study of its early-generation, single antigen hepatitis C virus (HCV) vaccine delivered using our early-generation delivery device in combination with a drug regimen. The study did not achieve results showing a statistically significant difference in efficacy compared to the drug regimen alone. We have ceased all activities relating to this collaboration.

In 2013, the University of Southampton indicated that its UK phase II clinical study of its WT1 leukemia vaccine delivered using Inovio's earlier generation electroporation delivery technology is not currently recruiting new subjects due to an interruption in sponsor funding. There have been no safety concerns identified during the study.

Separately, Inovio has designed a (wholly owned) SynCon® cancer vaccine candidate based on the WT1 antigen to be delivered with its state-of-the art CELLECTRA® electroporation device and has generated promising pre-clinical data. This new candidate will be a part of multiple cancer immunotherapeutic programs in Inovio’s oncology pipeline.

These discontinued studies and collaborations were based on a past strategy involving device-only contributions to collaborators by Inovio. This contribution consisted of Inovio’s older generation electroporation technology without the use of Inovio’s SynCon® products. Collaborations of this nature will not be a part of Inovio’s core product-development focus strategy.

Additional Applications of Our Electroporation Delivery Technology

In addition to using our technology for human drug and vaccine delivery, it can be used for research to validate new drug targets, to generate monoclonal antibodies, deliver siRNA and other molecules. The use of our technology for research increases general awareness for the technology and may facilitate its transition into clinical development for these other

applications. In addition, we believe there may be a benefit to exploring future potential applications for our technology in the area of gene therapy to treat genetic disorders.

We continue to pursue limited opportunities in the areas of stem cells, ex-vivo applications and RNAi, where collaborators would provide the majority of required development resources.

Our Electroporation Delivery Technology

Choice of Tissue for DNA Delivery

Skeletal muscle has been a core focus for delivery of DNA-based vaccines via electroporation because it is mainly composed of large elongated cells with multiple nuclei. Muscle cells are non-dividing, hence long-term expression can be obtained without integration of the gene of interest into the genome. Muscle cells have been shown to have a capacity for secretion of proteins into the blood stream. Secreted therapeutic proteins may therefore act systemically and produce therapeutic effects in distant tissues of the body. In this respect, the muscle functions as a factory for the production of the biopharmaceutical needed by the body. We envision that delivery of DNA by electroporation to muscle cells will circumvent the costly and complicated production procedures of viral gene delivery vectors, protein-based drugs, conventional vaccines and monoclonal antibodies. This approach may provide long-term stable expression of a therapeutic protein or monoclonal antibody at a sustained level.

For vaccination, the DNA causes muscle cells to produce antigenic proteins that the immune system will identify as foreign and against which it will mount an immune response. As with conventional vaccines, the immune system will then develop memory of this antigen (and related disease) for future reference. Intramuscular delivery by electroporation of DNA encoded antigens has been shown to induce both humoral (antibody) and cellular (T cell) immune responses.

While we have generated pre-clinical and preliminary clinical evidence that intramuscular electroporation-based DNA delivery will be effective for a number of vaccines, electroporation of the skin may also be a relevant route of administration. Skin or intradermal administration is important and is becoming an attractive site for immunization given its high density of antigen presenting cells (APCs). Unlike muscle, skin is the first line of defense against most pathogens and is therefore very rich in immune cells and molecules. Skin specifically contains certain cells that are known to help in generating a robust immune response. With intradermal administration of electroporation, we may be able to demonstrate a comparable immune response to muscle delivery. Drug delivery into skin, or dermal tissue, is the most attractive method given that the skin is the largest, most accessible, and most easily monitored organ of the human body, and it is highly immuno-competent (able to recognize antigens and mount an immune response to them).

Our Electroporation Systems

Existing generations of electroporation systems consist of an electrical pulse generator box the size of a large laptop attached by a cord to a separate needle-electrode applicator. We have also developed a series of hand-held, cordless electroporation devices which bring together groundbreaking design and engineering advancements to combine all components into a self-contained, easy-to-use portable device the size of a cordless hand tool.

CELLECTRA® System

There are several configurations in the CELLECTRA® device family. The first covers intramuscular (IM) delivery of DNA; the second covers the intradermal/subcutaneous delivery (ID) of DNA. Both devices have been validated, manufactured under Current Good Manufacturing Practices (cGMP) and are being used in human clinical trials. We have filed a device master file (MAF) with the FDA covering the use of the CELLECTRA®-IM EP device in human clinical trials. These devices are intended to be used in combination with a DNA plasmid-based vaccine.

The new CELLECTRA®-SP products combine the functionality of our current generation of skin and intramuscular electroporation devices in clinical testing with enhanced form, design, and portability. All components from the pulse generator and applicator are integrated into a cordless, rechargeable device. The rechargeable battery can enable vaccination of several hundred subjects, making the device highly amenable to mass vaccination. The devices are designed to accommodate different electrode arrays to meet the requirements of the particular vaccine and tissue for delivery (skin or muscle).

In 2013, we made a strategic decision to consolidate all clinical development to the CELLECTRA® EP devices and their future improved versions. The Elgen™ and MedPulser® devices were discontinued and will be phased out following the closure of the Chrontech and University of Southampton trials. The consolidation of the devices to the CELLECTRA® will help streamline inventories and management of clinical development under a single device

platform. The CELLECTRA® device has been used to support all of our internally developed vaccine and immunotherapy programs.

Next Generation Devices

All of our electroporation delivery systems noted above can increase levels of gene expression (i.e. production of the immune-stimulating protein the vaccine was coded to produce) of DNA vaccines by 1000-fold or more compared to delivery of DNA vaccines via conventional injection alone. Delivery of our SynCon® vaccines into muscle or skin tissue with our electroporation systems have generated robust immune responses in humans against cervical dysplasia, influenza (H5N1 and H1N1), and HIV, as well as for other diseases in animal models.

While our current intramuscular (IM) delivery technologies are well tolerated, we are also advancing next generation, minimally invasive intradermal electroporation delivery devices. One ID device penetrates to no more than 3 mm, compared to intramuscular devices that go deeper. Furthermore, a second ID device is a surface electroporation (SEP) device that sits on the surface of the skin and uses a virtually undetectable scratch to facilitate delivery of the vaccine. With the advancement of these devices, our aim is to make electroporation delivery amenable to mass prophylactic vaccination by decreasing dose levels, increasing tolerability of the vaccination, and increasing the breadth of viable vaccine targets. Our data related to influenza, HIV, malaria, and smallpox antigens demonstrate that DNA delivery with this newer generation of ID delivery including SEP devices yields levels of immunogenicity in terms of both antibody and T cell responses and/or efficacy against a virus challenge that is comparable to intramuscular electroporation devices currently in the clinic.

These results were highlighted in October 2012, in the peer-reviewed journal, Human Gene Therapy, in a paper which described the positive immunological effects of the optimized electroporation parameters for its minimally invasive skin (intradermal) EP delivery devices.

We also previously announced (February 2011) a new needle-free, contactless electroporation technology for vaccine delivery, which provides the powerful enabling capabilities of electroporation without contacting the skin. Our pre-clinical research was highlighted in a paper published in the scientific journal Human Vaccines. The paper appearing in Human Vaccines, “Piezoelectric permeabilization of mammalian dermal tissue for in vivo DNA delivery leads to enhanced protein expression and increased immunogenicity,” described an innovative electroporation method optimized for delivery into skin. This new method is based on piezoelectricity, which is the generation of an electric field or electric potential by certain materials in response to applied mechanical stress.

Collaborations and Licensing Agreements

We have entered into various arrangements with corporate, academic, and government collaborators, licensors, licensees and others. These arrangements are summarized below and elsewhere in this annual report. In addition, we conduct ongoing discussions with potential collaborators, licensors and licensees.

On September 10, 2013, Inovio entered into an exclusive worldwide license agreement with Roche to research, develop and commercialize Inovio's multi-antigen DNA immunotherapies targeting prostate cancer (INO-5150) and hepatitis B (INO-1800). Under the terms of the agreement, Roche made an upfront payment of $10 million to Inovio. Roche will pay for all ongoing development costs and up to $412.5 million upon reaching certain development, regulatory and commercial event based payments. Additional development event based payments could also be made to Inovio if Roche pursues other indications with INO-5150 or INO-1800. As a part of this license agreement, Roche is also funding Inovio to design and test additional vaccine candidates to treat prostate cancer. Roche’s stated aim is to find first-in-class and best-in-class therapies that may become next generation treatments for patients with different types of cancer. This partnership provides validation of Inovio’s novel technology for treating and preventing diseases, provides non-dilutive funding, and allows us to accelerate our product development pipeline.

On March 24, 2010, we entered into a Collaboration and License Agreement (the “Agreement”) with VGX International (“VGX Int’l”). Under the Agreement, we granted VGX Int’l an exclusive license to our SynCon® universal influenza vaccine (the “Product”) delivered with electroporation to be developed in certain countries in Asia.

As consideration for this license we have received a research and development initiation fee, as well as research support and annual license maintenance fees, and will receive royalties on net product sales. In addition, contingent upon achievement of clinical and regulatory milestones, we will receive development payments over the term of the Agreement. The Agreement also provides us with exclusive rights to supply devices for clinical and commercial purposes (including single use components) to VGX Int’l for use in the Product.

The term of the Agreement commenced upon execution and will extend on a country by country basis until the last to expire of all Royalty Periods for the territory (as such term is defined in the Agreement) for any Product in that country, unless the Agreement is terminated earlier in accordance with its provisions as a result of breach, by mutual

agreement, or by VGX Int'l right to terminate without cause upon prior written notice.

In October 2011, we entered into a product development collaboration agreement with VGX Int'l to co-develop our SynCon® therapeutic vaccines for hepatitis B and C infections. Under the terms of the agreement, VGX Int'l received marketing rights for these vaccines in Asia, excluding Japan, and in return was to fully fund IND-enabling and initial phase I

and II clinical studies. We will receive payments based on the achievement of clinical milestones and royalties based on sales in the licensed territories and will retain all commercial rights in all other territories.

In conjunction with our announcement of our Roche partnership we also announced that we reacquired the rights, title and interest to the SynCon® hepatitis B vaccine in Asia from VGX Int'l.

In January 2010, we announced that we expanded our existing license agreement with the University of Pennsylvania, adding exclusive worldwide licenses for technology and intellectual property for novel synthetic vaccines against pandemic influenza, Chikungunya, and FMD. The amendment also encompassed new chemokine and cytokine molecular adjuvant technologies. The technology was developed in the University of Pennsylvania laboratory of Professor David B. Weiner, a pioneer in the field of DNA-based vaccines and chairman of our scientific advisory board. Under the terms of the original license agreement completed in 2007, we obtained exclusive worldwide rights to develop multiple DNA plasmids and constructs with the potential to treat and/or prevent HIV, HCV, HPV and influenza. The agreement also included molecular adjuvants. These prior and most recent agreements and amendments provide for royalty payments, based on future sales, to the University of Pennsylvania.

In July 2011, we further expanded our license agreement with the University of Pennsylvania, adding exclusive worldwide licenses for technology and intellectual property for novel synthetic vaccines against prostate cancer, herpes viruses, including CMV (cytomegalovirus), malaria, hepatitis B, RSV (respiratory syncytial virus), and MRSA (methicillin-resistant staphylococcus aureus). The amendment also encompassed a new optimized IL-12 cytokine gene adjuvant.

In November 2012, we again expanded our license agreement with the University of Pennsylvania, adding worldwide rights to technology and intellectual property for novel synthetic vaccines against intestinal infections including Clostridium difficile, or C. difficile; cancer therapeutic vaccines targeting Wilms' tumor gene or WT1; and biodefense pathogens including Ebola and the family of Filovirus such as Marburg.

In March 2009, we announced an agreement with the PATH Malaria Vaccine Initiative (MVI) to evaluate in a pre-clinical feasibility study our SynCon® vaccine development platform. More specifically, this collaboration was to design and test synthetic vaccine candidates using target antigens from Plasmodium species and deliver them intradermally using the CELLECTRA® electroporation device. The first program was completed in February 2010. In September 2010, MVI agreed to provide follow-on funding to continue evaluation and development of our malaria synthetic vaccine candidate in non-human primates.

In the prior MVI-funded feasibility study, our malaria vaccine candidate induced broad-based immunity to four pre-erythrocytic malaria antigens. In the subsequent non-human primate study, our SynCon® vaccine constructs, which target sporozoites and the liver stage of the parasite, demonstrated potent T cell and antibody.

In January 2013, we announced a follow-on collaboration with the PATH Malaria Vaccine Initiative (MVI) focused on initiating human studies to assess whether a DNA vaccine(s) delivered using electroporation can induce an immune response in humans that protects against malaria parasite infection. The actual timing of the human study is dependent upon proper and timely funding from MVI.

Market

We anticipate that over the next several years a number of key demographic and technological factors should accelerate growth in the market for vaccines and medical therapies to prevent and treat infectious diseases and cancer, particularly in our product categories. These factors include the following:

- Rise in emerging infectious diseases and the threat of pandemics. The attention received by the pandemic potential of avian influenza has mobilized cross-border agencies including governments, world health organizations and private and public corporations to develop effective vaccination and therapeutics strategies. Our candidate vaccines for avian influenza, Chikungunya and dengue are among those intended to serve these needs.
- Increased consumer awareness. In areas such as cervical cancer, increased consumer awareness related to HPV infection, the primary cause of cervical cancer, has led to renewed efforts for developing effective therapies. The current vaccines for cervical cancer prevention (Gardasil® and Cervarix®), while being effective measures for prevention in the unexposed population, are ineffective in people infected with HPV.
- Large unmet need. In areas such as HIV and HBV (prevention and therapy) there is a large unmet need with no vaccine options on the market. With the exit of several players in the recent years from the HIV vaccine development area, if our vaccines prove successful we believe we are positioned to obtain a significant market

position.

We believe there is a significant unmet clinical need to develop more efficacious vaccines that stimulate cellular immunity (i.e. can induce therapeutic T cell responses) and can be applied to diseases such as cancer, hepatitis C or HIV infection. For these applications, our scientists believe that synthetic vaccines may offer an improvement over conventional vaccination. Our scientists believe that electroporation of DNA is critical to maximizing the efficiency of DNA vaccination and meeting unmet clinical needs for therapeutic vaccines, which some industry analysts consider to be a multi-billion dollar market opportunity.

Competition

We are aware of several development-stage and established enterprises, including major pharmaceutical and biotechnology firms, which are actively engaged in infectious disease and cancer vaccine research and development. These include Crucell N.V (now part of J&J), Sanofi-Aventis, Novartis, Inc., GlaxoSmithKline plc, Merck, Pfizer, and MedImmune, Inc., a wholly owned subsidiary of AstraZeneca, Inc. We may also experience competition from companies that have acquired or may acquire technologies from companies, universities and other research institutions. As these companies develop their technologies, they may develop proprietary technologies which may materially and adversely affect our business.

In addition, a number of companies are developing products to address the same diseases that we are targeting. For example, Sanofi-Aventis, Novartis, Inc., MedImmune, GlaxoSmithKline, CSL (in collaboration with Merck), and others have products or development programs for influenza. Merck and GlaxoSmithKline have commercialized preventive vaccines against HPV to protect against cervical cancer; Advaxis has a therapeutic cervical cancer product in phase II trials. Much of the development for our HIV and malaria vaccines is being done by government and non-government organizations such as the NIH and Bill & Melinda Gates Foundation.

We compete with companies that are developing DNA delivery technologies, such as viral delivery systems, lipid-based systems, or electroporation technology with an aim to carry out in vivo gene delivery for the treatment of various diseases. Currently there are five key DNA delivery technologies: viral, lipids, naked DNA, “gene gun” and electroporation. All of these technologies have shown promise, but they each also have their unique obstacles to overcome. We believe our electroporation system is strongly positioned to succeed as the dominant delivery method for DNA-based vaccines.

Viral DNA Delivery

This technology utilizes a virus as a carrier to deliver genetic material into target cells. The method is very efficient for delivering vaccine antigens and has the advantage of mimicking real viral infection so that the recipient will mount a broad immune response against the vaccine. The greatest limitation of the technology stems from problems with unwanted immune responses against the viral vector, limiting its use to patients who have not been previously exposed to the viral vector and making repeated administration difficult. In addition, complexity and safety concerns increase the cost of vaccines and complicate regulatory approval.

Ballistic DNA Delivery (Gene Gun)

This technology utilizes micron sized DNA-coated gold particles that are shot into the skin using compressed gas. The method has matured considerably over the last 15 years and has been shown to be an efficient method to deliver a number of vaccine antigens. Since the DNA is dry coated, excellent stability of the vaccine can be achieved. The method is limited to use in skin and only a few micrograms of genetic material can be delivered each time. This may limit the utility of the method for targets such as cancer where higher doses of vaccine antigens and stronger T cell responses are needed.

Lipid DNA Delivery

A number of lipid formulations have been developed that increase the effect of DNA vaccines. These work by either increasing uptake of the DNA into cells or by acting as an adjuvant, alerting the immune system. While there has been progress in this field, lipid delivery tends to be less efficient than viral vectors and is hampered by concerns regarding toxicity and increased complexity.

“Naked” DNA Delivery

The simplest DNA delivery mode is the injection of “naked” plasmid DNA into target tissue, usually skeletal muscle. This method is safe and economical but inefficient in terms of cell transfection, the process of transferring DNA into a cell across the outer cell membrane. Unfortunately, it is the least effective way of delivering DNA since only an

extremely small fraction (approximately one out of twenty million) of the DNA molecules are taken up by the cells. The method is inadequate for delivering DNA vaccines into large animals and humans.

"Naked" DNA Delivery With Electroporation

When naked DNA injection is followed by electroporation of the target tissue, transfection is significantly greater with resultant gene expression generally enhanced 1000-fold. This increase makes many DNA vaccine candidates potentially feasible without unduly compromising safety or cost.

In December 2004, the first patient was treated using our electroporation system to deliver a plasmid DNA-based therapeutic vaccine and we have initiated, together with partners, additional phase I and phase II clinical trials using our electroporation technology to deliver preventive and therapeutic synthetic vaccines. To date our scientists have not observed any serious adverse events that can be attributed to the use of electroporation in these clinical studies.

We believe that the greatest obstacle to making synthetic vaccines a reality has been the lack of safe, efficient and economical delivery of DNA plasmid constructs into target cells and that electroporation may become the method of choice for DNA delivery into cells in many applications.

There are other companies with electroporation intellectual property and devices. We believe we have significant competitive advantages over other companies focused on electroporation for multiple reasons:

- We have an extensive history and experience in developing the methods and devices that optimize the use of electroporation in conjunction with DNA-based agents. This experience has been validated with multiple sets of interim data from multiple clinical studies assessing DNA-based immunotherapies and vaccines against cancers and infectious disease. Together with our partners and collaborators, we have been the leader in establishing proof-of-principle of electroporation-delivered synthetic vaccines.
- We have a broad product line of electroporation instruments designed to enable DNA delivery in tumors, muscle, and skin.
- We have been very proactive in filing for patents, as well as acquiring and licensing additional patents, to expand our global patent estate.

If any of our competitors develop products with efficacy or safety profiles significantly better than our products, we may not be able to commercialize our products, and sales of any of our commercialized products could be harmed.

Some of our competitors and potential competitors have substantially greater product development capabilities and financial, scientific, marketing and human resources than we do. Competitors may develop products earlier, obtain FDA approvals for products more rapidly, or develop products that are more effective than those under development by us. We will seek to expand our technological capabilities to remain competitive; however, research and development by others may render our technologies or products obsolete or noncompetitive, or result in treatments or cures superior to ours.

Our competitive position will be affected by the disease indications addressed by our product candidates and those of our competitors, the timing of market introduction for these products and the stage of development of other technologies to address these disease indications. For us and our competitors, proprietary technologies, the ability to complete clinical trials on a timely basis and with the desired results, and the ability to obtain timely regulatory approvals to market these product candidates are likely to be significant competitive factors. Other important competitive factors will include the efficacy, safety, ease of use, reliability, availability and price of products and the ability to fund operations during the period between technological conception and commercial sales.

The FDA and other regulatory agencies may expand current requirements for public disclosure of DNA-based product development data, which may harm our competitive position with foreign and United States companies developing DNA-based products for similar indications.

Government Regulation

DNA Vaccine Product Regulation

Any pharmaceutical products we develop will require regulatory clearances prior to clinical trials and additional regulatory approvals prior to commercialization. New gene-based products for vaccine or therapeutic applications are subject to extensive regulation by the FDA and comparable agencies in other countries. Our potential products will be regulated as biological products that are used to treat or prevent disease. In the United States, drugs are subject to regulation under the Federal Food, Drug and Cosmetic Act, or the FDC Act. Biological products, in addition to being subject to provisions of the FDC Act, are regulated in the United States under the Public Health Service Act. Both statutes and related regulations govern, among other things, testing, manufacturing, safety, efficacy, labeling, storage, record keeping, advertising, and other promotional practices.

Obtaining FDA approval or comparable approval from similar agencies in other countries is a costly and time-consuming process. Generally, FDA approval requires that pre-clinical studies be conducted in the laboratory and in animal model systems to gain preliminary information on efficacy and to identify any major safety concerns. In the United States, the

results of these studies are submitted as a part of an IND application which the FDA must review and allow before human clinical trials can start. The IND application includes a detailed description of the proposed clinical investigations.

A company must submit an IND application or equivalent application in other countries for each proposed product and must conduct clinical studies to demonstrate the safety and efficacy of the product necessary to obtain FDA approval or comparable approval from similar agencies in other countries. For example, in the United States, the FDA receives reports on the progress of each phase of clinical testing and may require the modification, suspension, or termination of clinical trials if an unwarranted risk is presented to patients.

To obtain FDA approval prior to marketing a pharmaceutical product in the United States typically requires several phases of clinical trials to demonstrate the safety and efficacy of the product candidate. Clinical trials are the means by which experimental treatments are tested in humans, and are conducted following pre-clinical testing. Clinical trials may be conducted within the United States or in foreign countries. If clinical trials are conducted in foreign countries, the products under development as well as the trials are subject to regulations of the FDA and/or its counterparts in the other countries. Upon successful completion of clinical trials, approval to market the treatment for a particular patient population may be requested from the FDA in the United States and/or its counterparts in other countries.

Clinical trials for therapeutic products are normally done in three phases. Phase I clinical trials are typically conducted with a small number of patients or healthy subjects to evaluate safety, determine a safe dosage range, identify side effects, and, if possible, gain early evidence of effectiveness. Phase II clinical trials are conducted with a larger group of patients to evaluate effectiveness of an investigational product for a defined patient population, and to determine common short-term side effects and risks associated with the drug. Phase III clinical trials involve large scale, multi-center, comparative trials that are conducted to evaluate the overall benefit-risk relationship of the investigational product and to provide an adequate basis for product labeling. In some special cases where the efficacy testing of a product may present a special challenge to testing in humans, such as in the case of a vaccine to protect healthy humans from a life-threatening disease that is not a naturally occurring threat, effectiveness testing may be required in animals.

After completion of clinical trials of a new product, FDA marketing approval must be obtained or equivalent approval in comparable agencies in other countries. For the FDA, if the product is regulated as a biologic, a Biologics License Application, or BLA, is required. The BLA must include results of product development activities, pre-clinical studies, and clinical trials in addition to detailed chemistry, manufacturing and control information.

Applications submitted to the FDA are subject to an unpredictable and potentially prolonged approval process. Despite good-faith communication and collaboration between the applicant and the FDA during the development process, the FDA may ultimately decide, upon final review of the data, that the application does not satisfy its criteria for approval or requires additional product development or further pre-clinical or clinical studies. Even if FDA regulatory clearances are obtained, a marketed product is subject to continual review, and later discovery of previously unknown problems or failure to comply with the applicable regulatory requirements may result in restrictions on the marketing of a product or withdrawal of the product from the market as well as possible civil or criminal sanctions.

Before marketing clearance for a product can be secured, the facility in which the product is manufactured must be inspected by the FDA and must comply with cGMP regulations. In addition, after marketing clearance is secured, the manufacturing facility must be inspected periodically for cGMP compliance by FDA inspectors.

In addition to the FDA requirements, the NIH has established guidelines for research involving human genetic materials, including recombinant DNA molecules. The FDA cooperates in the enforcement of these guidelines, which apply to all recombinant DNA research that is conducted at facilities supported by the NIH, including proposals to conduct clinical research involving gene therapies. The NIH review of clinical trial proposals and safety information is a public process and often involves review and approval by the Recombinant DNA Advisory Committee, of the NIH.

Sponsors of clinical trials are required to register and report results for all controlled clinical investigations, other than phase I investigations, of a product subject to FDA regulation. Trial registration may require public disclosure of confidential commercial development data resulting in the loss of competitive secrets, which could be commercially detrimental.

Medical Device Manufacturing Regulation

In addition, we are subject to regulation as a medical device manufacturer. We must comply with a variety of manufacturing, product development and quality regulations in order to be able to distribute our electroporation devices commercially around the world. In Europe, we must comply with the Medical Device Directives. We have a Quality System certified by its international Notified Body to be in compliance with the international Quality System Standard, ISO13485, and meeting the Annex II Quality System requirements of the MDD. We completed Annex II Conformity Assessment procedures to allow for the CE Mark of our electroporation devices.

In the United States, we are required to maintain facilities, equipment, processes and procedures that are in compliance with quality systems regulations. Our systems have been constructed to be in compliance with these regulations and our ongoing operations are conducted within these systems. Commercially distributed devices within the United States must be developed under formal design controls and be submitted to the FDA for clearance or approval. All development activity is performed according to formal procedures to ensure compliance with all design control regulations.

We employ modern manufacturing methods and controls to optimize performance and control costs. Internal capabilities and core competencies are strategically determined to optimize our manufacturing efficiency. We utilize contract manufacturers for key operations, such as clean room assembly and sterilization, which are not economically conducted in-house. We outsource significant sub-assemblies, such as populated printed circuit boards, for which capital requirements or manufacturing volumes do not justify vertical integration.

Other Regulations

We also are subject to various federal, state and local laws, regulations, and recommendations relating to safe working conditions, laboratory and manufacturing practices, the experimental use of animals, and the use and disposal of hazardous or potentially hazardous substances, including radioactive compounds and infectious disease agents, used in connection with our research. The extent of government regulation that might result from any future legislation or administrative action cannot be accurately predicted.

Commercialization and Manufacturing

Because of the broad potential applications of our technologies, we intend to develop and commercialize products both on our own and through our collaborators and licensees. We intend to develop and commercialize products in well-defined specialty markets, such as infectious diseases and cancer. Where appropriate, we intend to rely on strategic marketing and distribution alliances.

We believe our plasmids can be produced in commercial quantities through uniform methods of fermentation and processing that are applicable to all plasmids. We believe we will be able to obtain sufficient supplies of plasmids for all foreseeable clinical investigations.

Relationship with VGX Int’l

We acquired an equity interest in VGX Int’l in 2005. As of December 31, 2013, we owned 14.7% of the outstanding capital stock of VGX Int’l and VGX Int’l owned 294,360 shares of our common stock. None of our current officers, directors, or key employees beneficially owns, directly or indirectly, any securities of VGX Int’l.

In 2008 we sold our manufacturing operations (including patent rights to certain manufacturing technology) to VGXI, Inc., a wholly-owned United States subsidiary of VGX Int’l. In connection with this transfer we entered into a Supply Agreement pursuant to which VGXI, Inc., a cGMP contract manufacturer, produces and supplies the DNA plasmids for all of our research and early clinical trials. The price of the plasmids we purchase from VGXI, Inc. is determined by us and VGX Int’l at the time of order placement or, with respect to product supplied in connection with a grant contract, based on the contracted bid provided by the applicable agency. We agreed to treat VGX Int’l and its subsidiary as our most favored supplier for DNA plasmids and VGX Int’l and its subsidiary agreed to treat us as their most favored customer. Before we can manufacture DNA plasmids on our own behalf or engage a third party other than VGX Int’l or its subsidiary to manufacture DNA plasmids for us, we must first offer such manufacturing work to VGX Int’l or its subsidiary.

We have also entered into license and collaboration agreements pursuant to which we have granted VGX Int’l exclusive rights to certain of our product candidates in certain jurisdictions. For example, VGX Int’l has exclusive rights in countries in Asia including Korea to our VGX-3400X and INO-3510 for treatment of flu and our hepatitis C program. In exchange for these rights, VGX Int’l shares the development costs for some of our product candidates. Prior to signing the Roche Agreement, we reacquired the rights, title and interest to hepatitis B in Asia previously licensed to VGX Int'l. As a result, we paid $300,000 to VGX Int'l as of December 31, 2013 based on the up-front payment received from Roche.

For the years ended December 31, 2013 and 2012, we recognized revenue from VGX Int’l of $425,000 and $577,000, respectively, which consisted of licensing, collaborative research and development arrangements and other fees. Operating expenses related to VGX Int’l for the years ended December 31, 2013 and 2012 were $$2.3 million and

$871,000, respectively, primarily related to biologics manufacturing. At December 31, 2013 and 2012 we had an accounts receivable balance of $0 and $36,000, respectively, from VGX Int'l and its subsidiaries. At December 31, 2013 and 2012 we had a prepaid balance of $2.3 million and $887,000, respectively, to VGX Int'l and its subsidiaries.

Intellectual Property

Patents and other proprietary rights are essential to our business. We file patent applications to protect our technologies, inventions and improvements to our inventions that we consider important to the development of our business. We file for patent registration extensively in the United States and in key foreign markets. Although our patent filings include claims covering various features of our products and product candidates, including composition, methods of manufacture and use, our patents do not provide us with complete protection, or guarantee, against the development of competing products. In addition, some of our know-how and technology are not patentable. We thus also rely upon trade secrets, know-how, continuing technological innovations and licensing opportunities to develop and maintain our competitive position. We also require employees, consultants, advisors and collaborators to enter into confidentiality agreements, but such agreements may provide limited protection for our trade secrets, know-how or other proprietary information.

Our intellectual property portfolio covers our proprietary technologies, including electroporation delivery and vaccine related technologies. As of February 21, 2014, our patent portfolio included over 99 issued United States patents and 246 issued foreign counterpart patents.

Key vaccine related technology patents and published patent applications include the following:

- European patent no. 1809336B1, entitled, “Growth Hormone Releasing Hormone (GHRH) Enhances Vaccination Response”
- US Pat No. 7,846,720, entitled, “Optimized High Yield Synthetic Plasmids”
- US Pat. No. 8,168,769, entitled, “Improved Vaccines and Methods for Using the Same,” with claims directed to HPV vaccine products.
- US Pat. No. 8,389,706, entitled, “Vaccines for Human Papilloma Virus and Methods for Using the Same”
- International publication WO 08/014521, entitled, “Improved Vaccines and Methods for Using the Same,” which includes HCV, HPV, influenza, HIV, and cancer (hTERT) SynCon® DNA.
- International publication WO2009/099716, entitled, “Novel Vaccines Against Multiple Subtypes Of Dengue Virus.”
- US Pat. No. 8,133,723, entitled, “Novel Vaccines Against Multiple Subtypes Of Influenza.”
- US Pat. No. 8,298,820, entitled, “Influenza Nucleic Acid Molecules and Vaccines Made Thereform”
- International publication WO2009/073330, entitled, “Novel Vaccines Against Multiple Subtypes Of Influenza Virus.”
- International publication WO2010/0050939, entitled, “IMPROVED HCV VACCINES AND METHODS FOR USING THE SAME”
- International publication WO2010/044919, entitled, “SMALLPOX DNA VACCINE AND THE ANTIGENS THEREIN THAT ELICIT AN IMMUNE RESPONSE”
- US Pat. No. 8,178,660, entitled, “VACCINES AND IMMUNOTHERAPEUTICS USING CODON OPTIMIZED IL-15 AND METHODS FOR USING THE SAME.”
- European patent EU1976871, entitled, “VACCINES AND IMMUNOTHERAPEUTICS USING CODON OPTIMIZED IL-15 AND METHODS FOR USING THE SAME”
- US Pat No. 7173116, entitled, “NUCLEIC ACID FORMULATIONS FOR GENE DELIVERY AND METHODS OF USE”

Key electroporation related patents covering range of field strengths include the following:

- US Pat No. 7,922,709, entitled, “Enhanced delivery of naked DNA to skin by non-invasive in vivo electroporation.”
- US Pat No. 7,328,064, entitled, “Electroporation device and injection apparatus,” with claims directed to methods of delivering an agent plus electroporation.
- US Pat No. 7,245,963, entitled, “Electrode assembly for constant-current electroporation and use”
- US Pat No. 7,664,545, entitled, “Electrode assembly for constant-current electroporation and use”
- US Pat No. 6,697,669, entitled, “Skin and muscle-targeted gene therapy by pulsed electrical field”
- US Pat No. 6,110,161 issued August 29, 2000

- US Pat No. 6,261,281 issued July 17, 2001
- US Pat No. 6,958,060 issued October 25, 2005
- US Pat No. 6,939,862 issued September 6, 2005

If we fail to protect our intellectual property rights adequately our competitors might gain access to our technology and our business would thus be harmed. In addition, defending our intellectual property rights might entail significant expense. Any of our intellectual property rights may be challenged by others or invalidated through administrative processes or litigation through the courts. In addition, our patents, or any other patents that may be issued to us in the future, may not provide us with any competitive advantages, or may be challenged by third parties. Furthermore, legal standards relating to the validity, enforceability and scope of protection of intellectual property rights are uncertain. Effective patent, trademark, copyright and trade secret protection may not be available to us in each country where we operate. The laws of some foreign countries may not be as protective of intellectual property rights as those in the United States, and domestic and international mechanisms for enforcement of intellectual property rights in those countries may be inadequate. Accordingly, despite our efforts, we may be unable to prevent third parties from infringing upon or misappropriating our intellectual property or otherwise gaining access to our technology. We may be required to expend significant resources to monitor and protect our intellectual property rights. We may initiate claims or litigation against third parties for infringement of our proprietary rights or to establish the validity of our proprietary rights. Any such litigation, whether or not it is ultimately resolved in our favor, would result in significant expense to us and divert the efforts of our technical and management personnel.

There may be rights we are not aware of, including applications that have been filed but not published that, when issued, could be asserted against us. These third-parties could bring claims against us, and that would cause us to incur substantial expenses and, if successful against us, could cause us to pay substantial damages. Further, if a patent infringement suit were brought against us, we could be forced to stop or delay research, development, manufacturing or sales of the product or biologic drug candidate that is the subject of the suit. As a result of patent infringement claims, or in order to avoid potential claims, we may choose or be required to seek a license from the third-party. These licenses may not be available on acceptable terms, or at all. Even if we are able to obtain a license, the license would likely obligate us to pay license fees or royalties or both, and the rights granted to us might be non-exclusive, which could result in our competitors gaining access to the same intellectual property. Ultimately, we could be prevented from commercializing a product, or be forced to cease some aspect of our business operations, if, as a result of actual or threatened patent infringement claims, we are unable to enter into licenses on acceptable terms. All of the issues described above could also impact our collaborators, which would also impact the success of the collaboration and therefore us.

Important legal issues remain to be resolved as to the extent and scope of available patent protection for biologic products, including vaccines, and processes in the United States and other important markets outside the United States, such as Europe and Japan. Foreign markets may not provide the same level of patent protection as provided under the United States patent system. We recognize that litigation or administrative proceedings may be necessary to determine the validity and scope of certain of our and others' proprietary rights. Any such litigation or proceeding may result in a significant commitment of resources in the future and could force us to interrupt our operations, redesign our products or processes, or negotiate a license agreement, all of which would adversely affect our revenue. Furthermore, changes in, or different interpretations of, patent laws in the United States and other countries may result in patent laws that allow others to use our discoveries or develop and commercialize our products.

We cannot guarantee that the patents we obtain or the unpatented technology we hold will afford us significant commercial protection.

Significant Customers and Research and Development

During the year ended December 31, 2013, we derived 68% of our revenue from Roche. During the years ended December 31, 2013 and 2012, we derived 16% and 69% of our revenue from the NIAID, respectively.

Since our inception, virtually all of our activities have consisted of research and development efforts related to developing our electroporation technologies and synthetic vaccines. Research and development expense consists of expenses incurred in performing research and development activities including salaries and benefits, facilities and other overhead expenses, clinical trials, contract services and other outside expenses. Our research and development

expense was $21.4 million in 2013 and $18.0 million in 2012.

Corporate History and Headquarters

Inovio Pharmaceuticals, Inc. grew out of the merger of VGX Pharmaceuticals, Inc. ("VGX") and Inovio Biomedical Corporation. On June 1, 2009, VGX, a private company primarily focused on developing DNA vaccines, completed a merger with Inovio Biomedical Corporation, a publicly listed company whose main focus was developing electroporation delivery technology and devices, pursuant to the terms of an Amended and Restated Agreement and Plan of Merger dated December 5, 2008, as further amended on March 31, 2009. Subsequent to the merger, we conduct our business through our United States wholly-owned subsidiaries, VGX Pharmaceuticals, LLC and Genetronics, Inc. On May 14, 2010, the entity changed its corporate name to Inovio Pharmaceuticals, Inc. Our corporate headquarters is located at 1787 Sentry Parkway West, Blue Bell, Pennsylvania 19422, and the telephone number is (267) 440-4200. Inovio Pharmaceuticals (NYSE MKT: INO) is focused on advancing products based on its integrated technology platform consisting of its SynCon® DNA immunotherapies and vaccines delivered with its CELLECTRA® electroporation delivery devices.

VGX was originally incorporated as Viral Genomix, Inc. under the laws of Delaware on April 17, 2000, to develop new drugs and therapies to treat viral diseases and cancers. The company was renamed VGX Pharmaceuticals, Inc. on May 31, 2006. On February 21, 2007, VGX acquired Advisys, Inc., a company possessing DNA and electroporation technology, through an asset purchase agreement. On April 14, 2007, VGX entered into an exclusive license agreement with the Trustees of the University of Pennsylvania related to therapeutic and prophylactic DNA vaccines developed by Dr. David Weiner at the University of Pennsylvania School of Medicine. VGX focused on advancing its DNA vaccine technology targeting cancers and infectious diseases.

Inovio Biomedical Corporation originated, in part, as a company incorporated on June 29, 1983, under the laws of California as Biotechnologies & Experimental Research, Inc. The company changed its corporate name to BTX, Inc. on December 10, 1991, and Genetronics, Inc. on February 8, 1994. On April 14, 1994, Genetronics, Inc. became a public company through a share exchange agreement with Consolidated United Safety Technologies, Inc., a company listed on the Vancouver Stock Exchange under the laws of British Columbia, Canada, which then changed its name to Genetronics Biomedical Ltd. on September 29, 1994. Genetronics, Inc. remained as a wholly owned operating subsidiary. On September 2, 1997, the company listed on the Toronto Stock Exchange. On December 8, 1998, the company listed on the American Stock Exchange (now owned by the NYSE and referred to as the NYSE MKT). We voluntarily de-listed from the Toronto Stock Exchange on January 17, 2003. On June 15, 2001, Genetronics Biomedical Ltd. completed a change in jurisdiction of incorporation from British Columbia, Canada, to the state of Delaware and became Genetronics Biomedical Corporation. On January 25, 2005, Genetronics Biomedical Corporation acquired Inovio AS, a gene delivery technology company. On March 31, 2005, Genetronics Biomedical Corporation was renamed Inovio Biomedical Corporation. Inovio Biomedical Corporation was originally formed to develop electroporation devices for the research marketplace and later began to explore human applications of electroporation to deliver agents such as chemotherapeutic agents, gene therapies, and DNA vaccines.

Available Information

Our Internet website address is www.inovio.com. We make our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, Forms 3, 4, and 5 filed on behalf of directors and executive officers, and any amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, or the Exchange Act, available free of charge on our website as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission, or the SEC. You can also read and copy any materials we file with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, DC 20549. You can obtain additional information about the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. In addition, the SEC maintains an Internet site (www.sec.gov) that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, including us.

Information regarding our corporate governance, including the charters of our audit committee, our nomination and corporate governance committee and our compensation committee, our Code of Business Conduct and Ethics, our Corporate Governance Policy and information for contacting our board of directors is available on our Internet site (www.inovio.com). We will provide any of the foregoing information without charge upon request to Peter Kies, 10480 Wateridge Circle, San Diego, CA, 92121.

Our Code of Business Conduct and Ethics includes our Code of Ethics applicable to our Chief Executive Officer and Chief Financial Officer, who also serves as our principal accounting officer. Any amendments to or waivers of the Code of Ethics will be promptly posted on our Internet site (www.inovio.com) or in a report on Form 8-K, as required by applicable law.

Employees

As of March 7, 2014, we employed 71 people on a full-time basis and 3 people under consulting and project employment agreements. Of the combined total, 52 were in product research, which includes research and development, quality assurance, clinical, engineering, and manufacturing, and 22 were in general and administrative, which includes

corporate development, information technology, legal, investor relations, finance, and corporate administration. None of our employees are subject to collective bargaining agreements.

ITEM 1A. RISK FACTORS

You should carefully consider the following factors regarding information included in this Annual Report. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations. If any of the following risks actually occur, our business, financial condition and operating results could be materially adversely affected.

Risks Related to Our Business and Industry

We have incurred losses since inception, expect to incur significant net losses in the foreseeable future and may never become profitable.

We have experienced significant operating losses to date; as of December 31, 2013 our accumulated deficit was approximately $295.8 million. We have generated limited revenues, primarily consisting of license and grant revenue, and interest income. We expect to continue to incur substantial additional operating losses for at least the next several years as we advance our clinical trials and research and development activities. We may never successfully commercialize our vaccine product candidates or electroporation-based synthetic vaccine delivery technology and thus may never have any significant future revenues or achieve and sustain profitability. We believe that current cash and cash equivalents plus short-term investments are sufficient to meet planned working capital requirements through the end of 2017. We will continue to rely on outside sources of financing to meet our capital needs beyond this time.

We have limited sources of revenue and our success is dependent on our ability to develop our vaccine and other product candidates and electroporation equipment.

We do not sell any products and may not have any other products commercially available for several years, if at all. Our ability to generate future revenues depends heavily on our success in:

- developing and securing United States and/or foreign regulatory approvals for our product candidates, including securing regulatory approval for conducting clinical trials with product candidates;
- developing our electroporation-based DNA delivery technology; and
- commercializing any products for which we receive approval from the FDA and foreign regulatory authorities.

Our electroporation equipment and product candidates will require extensive additional clinical study and evaluation, regulatory approval in multiple jurisdictions, substantial investment and significant marketing efforts before we generate any revenues from product sales. We are not permitted to market or promote our electroporation equipment and product candidates before we receive regulatory approval from the FDA or comparable foreign regulatory authorities. If we do not receive regulatory approval for and successfully commercialize any products, we will not generate any revenues from sales of electroporation equipment and products, and we may not be able to continue our operations.

None of our human vaccine product candidates has been approved for sale, and we may not develop commercially successful vaccine products.

Our human vaccine programs are in the early stages of research and development, and currently include vaccine product candidates in discovery, pre-clinical studies and phase I and II clinical studies. There are limited data regarding the efficiency of synthetic vaccines compared with conventional vaccines, and we must conduct a substantial amount of additional research and development before any regulatory authority will approve any of our vaccine product candidates. The success of our efforts to develop and commercialize our vaccine product candidates could fail for a number of reasons. For example, we could experience delays in product development and clinical trials. Our vaccine product candidates could be found to be ineffective or unsafe, or otherwise fail to receive necessary regulatory clearances. The products, if safe and effective, could be difficult to manufacture on a large scale or uneconomical to market, or our competitors could develop superior vaccine products more quickly and efficiently or more effectively market their competing products.

In addition, adverse events, or the perception of adverse events, relating to vaccines and vaccine delivery technologies may negatively impact our ability to develop commercially successful vaccine products. For example, pharmaceutical companies have been subject to claims that the use of some pediatric vaccines has caused personal injuries, including brain damage, central nervous system damage and autism. These and other claims may influence public perception of

the use of vaccine products and could result in greater governmental regulation, stricter labeling requirements and potential regulatory delays in the testing or approval of our potential products.

We will need substantial additional capital to develop our synthetic vaccine and electroporation delivery technology and other product candidates and for our future operations.

Conducting the costly and time consuming research, pre-clinical and clinical testing necessary to obtain regulatory approvals and bring our vaccine delivery technology and product candidates to market will require a commitment of substantial funds in excess of our current capital. Our future capital requirements will depend on many factors, including, among others:

- the progress of our current and new product development programs;
- the progress, scope and results of our pre-clinical and clinical testing;
- the time and cost involved in obtaining regulatory approvals;
- the cost of manufacturing our products and product candidates;
- the cost of prosecuting, enforcing and defending against patent infringement claims and other intellectual property rights;
- competing technological and market developments; and
- our ability and costs to establish and maintain collaborative and other arrangements with third parties to assist in potentially bringing our products to market.

Additional financing may not be available on acceptable terms, or at all. Domestic and international capital markets have been experiencing heightened volatility and turmoil, making it more difficult to raise capital through the issuance of equity securities. Furthermore, as a result of the recent volatility in the capital markets, the cost and availability of credit has been and may continue to be adversely affected by illiquid credit markets and wider credit spreads. Concern about the stability of the markets generally and the strength of counterparties specifically has led many lenders and institutional investors to reduce, and in some cases cease to provide, funding to borrowers. To the extent we are able to raise additional capital through the sale of equity securities or we issue securities in connection with another transaction, the ownership position of existing stockholders could be substantially diluted. If additional funds are raised through the issuance of preferred stock or debt securities, these securities are likely to have rights, preferences and privileges senior to our common stock and may involve significant fees, interest expense, restrictive covenants and the granting of security interests in our assets. Fluctuating interest rates could also increase the costs of any debt financing we may obtain. Raising capital through a licensing or other transaction involving our intellectual property could require us to relinquish valuable intellectual property rights and thereby sacrifice long-term value for short-term liquidity.

Our failure to successfully address ongoing liquidity requirements would have a substantially negative impact on our business. If we are unable to obtain additional capital on acceptable terms when needed, we may need to take actions that adversely affect our business, our stock price and our ability to achieve cash flow in the future, including possibly surrendering our rights to some technologies or product opportunities, delaying our clinical trials or curtailing or ceasing operations.

We depend upon key personnel who may terminate their employment with us at any time and we may need to hire additional qualified personnel in order to obtain financing, pursue collaborations or develop or market our product candidates.

The success of our business strategy will depend to a significant degree upon the continued services of key management, technical and scientific personnel and our ability to attract and retain additional qualified personnel and managers, including personnel with expertise in clinical trials, government regulation, manufacturing, marketing and other areas. Competition for qualified personnel is intense among companies, academic institutions and other organizations. If we are unable to attract and retain key personnel and advisors, it may negatively affect our ability to successfully develop, test, commercialize and market our products and product candidates.

We face intense and increasing competition and many of our competitors have significantly greater resources and experience.

Many other companies are pursuing other forms of treatment or prevention for diseases that we target. For example, many of our competitors are working on developing and testing H5N1, H1N1 and universal influenza vaccines, and several H1N1 vaccines developed by our competitors have been approved for human use. Our competitors and potential competitors include large pharmaceutical and medical device companies and more established biotechnology companies. These companies have significantly greater financial and other resources and greater expertise than us in

research and development, securing government contracts and grants to support research and development efforts, manufacturing, pre-clinical and clinical testing, obtaining regulatory approvals and marketing. This may make it easier for them to respond more quickly than us to new or changing opportunities, technologies or market needs. Many of these competitors operate large, well-funded research and development programs and have significant products approved or in development. Small companies may also prove to be significant competitors, particularly through collaborative arrangements with large pharmaceutical companies or through

acquisition or development of intellectual property rights. Our potential competitors also include academic institutions, governmental agencies and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for product and clinical development and marketing. Research and development by others may seek to render our technologies or products obsolete or noncompetitive.

If we lose or are unable to secure collaborators or partners, or if our collaborators or partners do not apply adequate resources to their relationships with us, our product development and potential for profitability will suffer.

We have entered into, or may enter into, distribution, co-promotion, partnership, sponsored research and other arrangements for development, manufacturing, sales, marketing and other commercialization activities relating to our products. For example, in the past we have entered into a license and collaboration agreement with Roche. The amount and timing of resources applied by our collaborators are largely outside of our control.

If any of our current or future collaborators breaches or terminates our agreements, or fails to conduct our collaborative activities in a timely manner, our commercialization of products could be diminished or blocked completely. It is possible that collaborators will change their strategic focus, pursue alternative technologies or develop alternative products, either on their own or in collaboration with others. Further, we may be forced to fund programs that were previously funded by our collaborators, and we may not have, or be able to access, the necessary funding. The effectiveness of our partners, if any, in marketing our products will also affect our revenues and earnings.

We desire to enter into new collaborative agreements. However, we may not be able to successfully negotiate any additional collaborative arrangements and, if established, these relationships may not be scientifically or commercially successful. Our success in the future depends in part on our ability to enter into agreements with other highly-regarded organizations. This can be difficult due to internal and external constraints placed on these organizations. Some organizations may have insufficient administrative and related infrastructure to enable collaborations with many companies at once, which can extend the time it takes to develop, negotiate and implement a collaboration. Once news of discussions regarding possible collaborations are known in the medical community, regardless of whether the news is accurate, failure to announce a collaborative agreement or the entity's announcement of a collaboration with another entity may result in adverse speculation about us, resulting in harm to our reputation and our business.

Disputes could also arise between us and our existing or future collaborators, as to a variety of matters, including financial and intellectual property matters or other obligations under our agreements. These disputes could be both expensive and time-consuming and may result in delays in the development and commercialization of our products or could damage our relationship with a collaborator.

A small number of licensing partners and government contracts account for a substantial portion of our revenue.

We currently derive, and in the past we have derived, a significant portion of our revenue from a limited number of licensing partners and government grants and contracts. For example, during the year ended December 31, 2013, Roche and the NIAID accounted for approximately 68% and 16%, of our consolidated revenue, respectively. If we fail to sign additional future contracts with major licensing partners and the government, if a contract is delayed or deferred, or if an existing contract expires or is canceled and we fail to replace the contract with new business, our revenue would be adversely affected.

We have agreements with government agencies, which are subject to termination and uncertain future funding.

We have entered into agreements with government agencies, such as the NIAID and the US Army, and we intend to continue entering into these agreements in the future. Our business is partially dependent on the continued performance by these government agencies of their responsibilities under these agreements, including adequate continued funding of the agencies and their programs. We have no control over the resources and funding that government agencies may devote to these agreements, which may be subject to annual renewal and which generally may be terminated by the government agencies at any time.

Government agencies may fail to perform their responsibilities under these agreements, which may cause them to be terminated by the government agencies. In addition, we may fail to perform our responsibilities under these agreements. Many of our government agreements are subject to audits, which may occur several years after the period to which the audit relates. If an audit identifies significant unallowable costs, we could incur a material charge to our earnings or reduction in our cash position. As a result, we may be unsuccessful entering, or ineligible to enter, into future government agreements.

Our quarterly operating results may fluctuate significantly.

We expect our operating results to be subject to quarterly fluctuations. Our net loss and other operating results will be affected by numerous factors, including:

- variations in the level of expenses related to our electroporation equipment, product candidates or future development programs;
- expenses related to corporate transactions, including ones not fully completed;
- addition or termination of clinical trials or funding support;
- any intellectual property infringement lawsuit in which we may become involved;
- any legal claims that may be asserted against us or any of our officers;
- regulatory developments affecting our electroporation equipment and product candidates or those of our competitors;
- our execution of any collaborative, licensing or similar arrangements, and the timing of payments we may make or receive under these arrangements; and
- if any of our products receives regulatory approval, the levels of underlying demand for our products.

If our quarterly operating results fall below the expectations of investors or securities analysts, the price of our common stock could decline substantially. Furthermore, any quarterly fluctuations in our operating results may, in turn, cause the price of our stock to fluctuate substantially. We believe that quarterly comparisons of our financial results are not necessarily meaningful and should not be relied upon as an indication of our future performance.

If we are unable to obtain FDA approval of our products, we will not be able to commercialize them in the United States.

We need FDA approval prior to marketing our electroporation equipment and products in the United States. If we fail to obtain FDA approval to market our electroporation equipment and product candidates, we will be unable to sell our products in the United States, which will significantly impair our ability to generate any revenues.

This regulatory review and approval process, which includes evaluation of pre-clinical studies and clinical trials of our products as well as the evaluation of our manufacturing processes and our third-party contract manufacturers' facilities, is lengthy, expensive and uncertain. To receive approval, we must, among other things, demonstrate with substantial evidence from well-controlled clinical trials that our electroporation equipment and product candidates are both safe and effective for each indication for which approval is sought. Satisfaction of the approval requirements typically takes several years and the time needed to satisfy them may vary substantially, based on the type, complexity and novelty of the product. We do not know if or when we might receive regulatory approvals for our electroporation equipment and any of our product candidates currently under development. Moreover, any approvals that we obtain may not cover all of the clinical indications for which we are seeking approval, or could contain significant limitations in the form of narrow indications, warnings, precautions or contra-indications with respect to conditions of use. In such event, our ability to generate revenues from such products would be greatly reduced and our business would be harmed.

The FDA has substantial discretion in the approval process and may either refuse to consider our application for substantive review or may form the opinion after review of our data that our application is insufficient to allow approval of our electroporation equipment and product candidates. If the FDA does not consider or approve our application, it may require that we conduct additional clinical, pre-clinical or manufacturing validation studies and submit that data before it will reconsider our application. Depending on the extent of these or any other studies, approval of any applications that we submit may be delayed by several years, or may require us to expend more resources than we have available. It is also possible that additional studies, if performed and completed, may not be successful or considered sufficient by the FDA for approval or even to make our applications approvable. If any of these outcomes occur, we may be forced to abandon one or more of our applications for approval, which might significantly harm our business and prospects.

It is possible that none of our products or any product we may seek to develop in the future will ever obtain the appropriate regulatory approvals necessary for us or our collaborators to commence product sales. Any delay in obtaining, or an inability to obtain, applicable regulatory approvals would prevent us from commercializing our products, generating revenues and achieving and sustaining profitability.

Clinical trials involve a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future trial results.

Clinical testing is expensive and can take many years to complete, and its outcome is uncertain. Failure can occur at any time during the clinical trial process. The results of pre-clinical studies and early clinical trials of our products may not be predictive of the results of later-stage clinical trials. Results from one study may not be reflected or supported by the results of

similar studies. Results of an animal study may not be indicative of results achievable in human studies. Human-use equipment and product candidates in later stages of clinical trials may fail to show the desired safety and efficacy traits despite having progressed through pre-clinical studies and initial clinical testing. The time required to obtain approval by the FDA and similar foreign authorities is unpredictable but typically takes many years following the commencement of clinical trials, depending upon numerous factors. In addition, approval policies, regulations, or the type and amount of clinical data necessary to gain approval may change. We have not obtained regulatory approval for any human-use products.

Our products could fail to complete the clinical trial process for many reasons, including the following:

- we may be unable to demonstrate to the satisfaction of the FDA or comparable foreign regulatory authorities that our electroporation equipment and a product candidate are safe and effective for any indication;
- the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for approval;
- the FDA or comparable foreign regulatory authorities may disagree with the design or implementation of our clinical trials;
- we may not be successful in enrolling a sufficient number of participants in clinical trials;
- we may be unable to demonstrate that our electroporation equipment and a product candidate's clinical and other benefits outweigh its safety risks;
- we may be unable to demonstrate that our electroporation equipment and a product candidate presents an advantage over existing therapies, or over placebo in any indications for which the FDA requires a placebo-controlled trial;
- the FDA or comparable foreign regulatory authorities may disagree with our interpretation of data from pre-clinical studies or clinical trials;
- the data collected from clinical trials of our product candidates may not be sufficient to support the submission of a new drug application or other submission or to obtain regulatory approval in the United States or elsewhere;
- the FDA or comparable foreign regulatory authorities may fail to approve the manufacturing processes or facilities of us or third-party manufacturers with which we or our collaborators contract for clinical and commercial supplies; and
- the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

Delays in the commencement or completion of clinical testing could result in increased costs to us and delay or limit our ability to generate revenues.

Delays in the commencement or completion of clinical testing could significantly affect our product development costs. We do not know whether planned clinical trials will begin on time or be completed on schedule, if at all. In addition, ongoing clinical trials may not be completed on schedule, or at all. The commencement and completion of clinical trials can be delayed for a number of reasons, including delays related to:

- obtaining regulatory approval to commence a clinical trial;
- adverse results from third party clinical trials involving gene based therapies and the regulatory response thereto;
- reaching agreement on acceptable terms with prospective CROs and trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- future bans or stricter standards imposed on gene based therapy clinical trials;
- manufacturing sufficient quantities of our electroporation equipment and product candidates for use in clinical trials;
- obtaining institutional review board, or IRB, approval to conduct a clinical trial at a prospective site;
- slower than expected recruitment and enrollment of patients to participate in clinical trials for a variety of reasons, including competition from other clinical trial programs for similar indications;
- conducting clinical trials with sites internationally due to regulatory approvals and meeting international standards;
- retaining patients who have initiated a clinical trial but may be prone to withdraw due to side effects from the therapy, lack of efficacy or personal issues, or who are lost to further follow-up; and
- collecting, reviewing and analyzing our clinical trial data.

Clinical trials may also be delayed as a result of ambiguous or negative interim results. In addition, a clinical trial may be suspended or terminated by us, the FDA, the IRB overseeing the clinical trial at issue, any of our clinical trial sites with respect to that site, or other regulatory authorities due to a number of factors, including:

- failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols;
- inspection of the clinical trial operations or trial sites by the FDA or other regulatory authorities resulting in the imposition of a clinical hold;
- unforeseen safety issues; and
- lack of adequate funding to continue the clinical trial.

If we experience delays in completion of, or if we terminate, any of our clinical trials, the commercial prospects for our electroporation equipment and our product candidates may be harmed and our ability to generate product revenues will be delayed. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of a product candidate. Further, delays in the commencement or completion of clinical trials may adversely affect the trading price of our common stock.

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

We and our collaborators have entered into agreements with CROs to provide monitors for and to manage data for our on-going clinical programs. We and the CROs conducting clinical trials for our electroporation equipment and product candidates are required to comply with current good clinical practices, or GCPs, regulations and guidelines enforced by the FDA for all of our products in clinical development. The FDA enforces GCPs through periodic inspections of trial sponsors, principal investigators and trial sites. If we or the CROs conducting clinical trials of our product candidates fail to comply with applicable GCPs, the clinical data generated in the clinical trials may be deemed unreliable and the FDA may require additional clinical trials before approving any marketing applications.

If any relationships with CROs terminate, we or our collaborators may not be able to enter into arrangements with alternative CROs. In addition, these third-party CROs are not our employees, and we cannot control whether or not they devote sufficient time and resources to our on-going clinical programs or perform trials efficiently. These CROs may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical studies or other drug development activities, which could harm our competitive position. If CROs do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced, or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols, regulatory requirements, or for other reasons, our clinical trials may be extended, delayed or terminated, and we may not be able to obtain regulatory approval for or successfully commercialize our product candidates. As a result, our financial results and the commercial prospects for our product candidates would be harmed, our costs could increase and our ability to generate revenues could be delayed. Cost overruns by or disputes with our CROs may significantly increase our expenses.

Even if our products receive regulatory approval, they may still face future development and regulatory difficulties.

Even if United States regulatory approval is obtained, the FDA may still impose significant restrictions on a product's indicated uses or marketing or impose ongoing requirements for potentially costly post-approval studies. This governmental oversight may be particularly strict with respect to gene based therapies. Our products will also be subject to ongoing FDA requirements governing the labeling, packaging, storage, advertising, promotion, record keeping and submission of safety and other post-market information. In addition, manufacturers of drug products and their facilities are subject to continual review and periodic inspections by the FDA and other regulatory authorities for compliance with current good manufacturing practices, or cGMP, regulations. If we or a regulatory agency discover previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured, a regulatory agency may impose restrictions on that product, the manufacturer or us, including requiring withdrawal of the product from the market or suspension of manufacturing. If we, our product candidates or the manufacturing facilities for our product candidates fail to comply with applicable regulatory requirements, a regulatory agency may:

- issue Warning Letters or untitled letters;

- impose civil or criminal penalties;
- suspend regulatory approval;
- suspend any ongoing clinical trials;
- refuse to approve pending applications or supplements to applications filed by us;

- impose restrictions on operations, including costly new manufacturing requirements; or
- seize or detain products or require us to initiate a product recall.

Even if our products receive regulatory approval in the United States, we may never receive approval or commercialize our products outside of the United States.

In order to market any electroporation equipment and product candidates outside of the United States, we must establish and comply with numerous and varying regulatory requirements of other countries regarding safety and efficacy. Approval procedures vary among countries and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries might differ from that required to obtain FDA approval. The regulatory approval process in other countries may include all of the risks detailed above regarding FDA approval in the United States as well as other risks. Regulatory approval in one country does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country may have a negative effect on the regulatory process in others. Failure to obtain regulatory approval in other countries or any delay or setback in obtaining such approval could have the same adverse effects detailed above regarding FDA approval in the United States. Such effects include the risks that our product candidates may not be approved for all indications requested, which could limit the uses of our product candidates and have an adverse effect on their commercial potential or require costly, post-marketing follow-up studies.

We face potential product liability exposure and, if successful claims are brought against us, we may incur substantial liability.

The use of our electroporation equipment and synthetic vaccine candidates in clinical trials and the sale of any products for which we obtain marketing approval expose us to the risk of product liability claims. Product liability claims might be brought against us by consumers, health care providers, pharmaceutical companies or others selling or otherwise coming into contact with our products. For example, pharmaceutical companies have been subject to claims that the use of some pediatric vaccines has caused personal injuries, including brain damage, central nervous system damage and autism, and these companies have incurred material costs to defend these claims. If we cannot successfully defend ourselves against product liability claims, we could incur substantial liabilities. In addition, regardless of merit or eventual outcome, product liability claims may result in:

- decreased demand for our product candidates;
- impairment of our business reputation;
- withdrawal of clinical trial participants;
- costs of related litigation;
- distraction of management's attention from our primary business;
- substantial monetary awards to patients or other claimants;
- loss of revenues; and
- inability to commercialize our products.

We have obtained product liability insurance coverage for our clinical trials, but our insurance coverage may not be sufficient to reimburse us for any expenses or losses we may suffer. Moreover, insurance coverage is becoming increasingly expensive, and, in the future, we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses due to liability. On occasion, large judgments have been awarded in class action lawsuits based on products that had unanticipated side effects. A successful product liability claim or series of claims brought against us could cause our stock price to decline and, if judgments exceed our insurance coverage, could adversely affect our business.

We currently have no marketing and sales organization and have no experience in marketing products. If we are unable to establish marketing and sales capabilities or enter into agreements with third parties to market and sell our products, we may not be able to generate product revenues.

We currently do not have a sales organization for the marketing, sales and distribution of our electroporation equipment and product candidates. In order to commercialize any products, we must build our marketing, sales, distribution, managerial and other non-technical capabilities or make arrangements with third parties to perform these services. We contemplate establishing our own sales force or seeking third-party partners to sell our products. The establishment and development of our own sales force to market any products we may develop will be expensive and

time consuming and could delay any product launch, and we may not be able to successfully develop this capability. We will also have to compete with other pharmaceutical and biotechnology companies to recruit, hire, train and retain marketing and sales personnel. To the extent we rely on third parties to commercialize our approved products, if any, we will receive lower revenues than if we commercialized these

products ourselves. In addition, we may have little or no control over the sales efforts of third parties involved in our commercialization efforts. In the event we are unable to develop our own marketing and sales force or collaborate with a third-party marketing and sales organization, we would not be able to commercialize our product candidates which would negatively impact our ability to generate product revenues.

If any of our products for which we receive regulatory approval does not achieve broad market acceptance, the revenues that we generate from their sales will be limited.

The commercial success of our electroporation equipment and product candidates for which we obtain marketing approval from the FDA or other regulatory authorities will depend upon the acceptance of these products by both the medical community and patient population. Coverage and reimbursement of our product candidates by third-party payors, including government payors, generally is also necessary for optimal commercial success. The degree of market acceptance of any of our approved products will depend on a number of factors, including:

- our ability to provide acceptable evidence of safety and efficacy;
- the relative convenience and ease of administration;
- the prevalence and severity of any actual or perceived adverse side effects;
- limitations or warnings contained in a product's FDA-approved labeling, including, for example, potential “black box” warnings
- availability of alternative treatments;
- pricing and cost effectiveness;
- the effectiveness of our or any future collaborators' sales and marketing strategies;
- our ability to obtain sufficient third-party coverage or reimbursement; and
- the willingness of patients to pay out of pocket in the absence of third-party coverage.

If our electroporation equipment and product candidates are approved but do not achieve an adequate level of acceptance by physicians, health care payors and patients, we may not generate sufficient revenue from these products, and we may not become or remain profitable. In addition, our efforts to educate the medical community and third-party payors on the benefits of our product candidates may require significant resources and may never be successful.

We are subject to uncertainty relating to reimbursement policies which, if not favorable to our product candidates, could hinder or prevent our products' commercial success.

Our ability to commercialize our electroporation equipment and product candidates successfully will depend in part on the extent to which governmental authorities, private health insurers and other third-party payors establish appropriate coverage and reimbursement levels for our product candidates and related treatments. As a threshold for coverage and reimbursement, third-party payors generally require that drug products have been approved for marketing by the FDA. Third-party payors also are increasingly challenging the effectiveness of and prices charged for medical products and services. We may not be able to obtain third-party coverage or reimbursement for our products in whole or in part.

Healthcare reform measures could hinder or prevent our products' commercial success.

In both the United States and certain foreign jurisdictions there have been, and we anticipate there will continue to be, a number of legislative and regulatory changes to the healthcare system that could impact our ability to sell any of our products profitably. In the United States, the Federal government recently passed healthcare reform legislation, the Patient Protection and Affordable Care Act, or the ACA. The provisions of the ACA are effective on various dates over the next several years. While many of the details regarding the implementation of the ACA are yet to be determined, we believe there will be continuing trends towards expanding coverage to more individuals, containing health care costs and improving quality. At the same time, the rebates, discounts, taxes and other costs associated with the ACA are expected to be a significant cost to the pharmaceutical industry.

The continuing efforts of the government, insurance companies, managed care organizations and other payors of healthcare services to make and implement healthcare reforms may adversely affect:

- our ability to set a price we believe is fair for our products;
- our ability to generate revenues and achieve or maintain profitability;
- the availability of capital; and
- our ability to obtain timely approval of our products.

35

If we fail to comply with applicable healthcare regulations, we could face substantial penalties and our business, operations and financial condition could be adversely affected.

Certain federal and state healthcare laws and regulations pertaining to fraud and abuse and patients' rights may be applicable to our business. We could be subject to healthcare fraud and abuse and patient privacy regulation by both the federal government and the states in which we conduct our business, without limitation. The laws that may affect our ability to operate include:

- the federal healthcare program Anti-Kickback Statute, which prohibits, among other things, people from soliciting, receiving or providing remuneration, directly or indirectly, to induce either the referral of an individual, for an item or service or the purchasing or ordering of a good or service, for which payment may be made under federal healthcare programs such as the Medicare and Medicaid programs;
- federal false claims laws which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid, or other third-party payors that are false or fraudulent;
- the ACA expands the government's investigative and enforcement authority and increases the penalties for fraud and abuse, including amendments to both the False Claims Act and the Anti-Kickback Statute to make it easier to bring suit under those statutes;
- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which prohibits executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters and which also imposes certain requirements relating to the privacy, security and transmission of individually identifiable health information;
- the Federal Food, Drug, and Cosmetic Act, which among other things, strictly regulates drug product marketing, prohibits manufacturers from marketing drug products for off-label use and regulates the distribution of drug samples; and
- state law equivalents of each of the above federal laws, such as anti-kickback and false claims laws which may apply to items or services reimbursed by any third-party payor, including commercial insurers, and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Additionally, the compliance environment is changing, with more states, such as California and Massachusetts, mandating implementation of compliance programs, compliance with industry ethics codes, and spending limits, and other states, such as Vermont, Maine, and Minnesota requiring reporting to state governments of gifts, compensation, and other remuneration to physicians. Under the ACA, starting in 2012, pharmaceutical companies will be required to record any transfers of value made to doctors and teaching hospitals and to disclose such data to HHS, with initial disclosure to HHS due in 2013. These laws all provide for penalties for non-compliance. The shifting regulatory environment, along with the requirement to comply with multiple jurisdictions with different compliance and/or reporting requirements, increases the possibility that a company may run afoul of one or more laws.

If our operations are found to be in violation of any of the laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including civil and criminal penalties, damages, fines and the curtailment or restructuring of our operations. Any penalties, damages, fines, curtailment or restructuring of our operations could adversely affect our ability to operate our business and our financial results. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. Moreover, achieving and sustaining compliance with applicable federal and state privacy, security and fraud laws may prove costly.

If we and the contract manufacturers upon whom we rely fail to produce our systems and product candidates in the volumes that we require on a timely basis, or fail to comply with stringent regulations, we may face delays in the development and commercialization of our electroporation equipment and product candidates.

We manufacture some components of our electroporation systems and utilize the services of contract manufacturers to manufacture the remaining components of these systems and our product supplies for clinical trials. The manufacture of our systems and product supplies requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers often encounter difficulties in production,

particularly in scaling up for commercial production. These problems include difficulties with production costs and yields, quality control, including stability of the equipment and product candidates and quality assurance testing, shortages of qualified personnel, as well as compliance with strictly enforced federal, state and foreign regulations. If we or our manufacturers were to encounter any of these difficulties or our manufacturers otherwise fail to comply with their obligations to us, our ability to provide our

electroporation equipment to our partners and products to patients in our clinical trials or to commercially launch a product would be jeopardized. Any delay or interruption in the supply of clinical trial supplies could delay the completion of our clinical trials, increase the costs associated with maintaining our clinical trial program and, depending upon the period of delay, require us to commence new trials at significant additional expense or terminate the trials completely.

In addition, all manufacturers of our products must comply with cGMP requirements enforced by the FDA through its facilities inspection program. These requirements include, among other things, quality control, quality assurance and the generation and maintenance of records and documentation. Manufacturers of our products may be unable to comply with these cGMP requirements and with other FDA, state and foreign regulatory requirements. We have little control over our manufacturers' compliance with these regulations and standards. A failure to comply with these requirements may result in fines and civil penalties, suspension of production, suspension or delay in product approval, product seizure or recall, or withdrawal of product approval. If the safety of any product is compromised due to our or our manufacturers' failure to adhere to applicable laws or for other reasons, we may not be able to obtain regulatory approval for or successfully commercialize our products, and we may be held liable for any injuries sustained as a result. Any of these factors could cause a delay of clinical trials, regulatory submissions, approvals or commercialization of our products, entail higher costs or result in our being unable to effectively commercialize our products. Furthermore, if our manufacturers fail to deliver the required commercial quantities on a timely basis, pursuant to provided specifications and at commercially reasonable prices, we may be unable to meet demand for our products and would lose potential revenues.

Our failure to successfully acquire, develop and market additional product candidates or approved products would impair our ability to grow.

We may acquire, in-license, develop and/or market additional products and product candidates. The success of these actions depends partly upon our ability to identify, select and acquire promising product candidates and products. The process of proposing, negotiating and implementing a license or acquisition of a product candidate or approved product is lengthy and complex. Other companies, including some with substantially greater financial, marketing and sales resources, may compete with us for the license or acquisition of product candidates and approved products. We have limited resources to identify and execute the acquisition or in-licensing of third-party products, businesses and technologies and integrate them into our current infrastructure. Moreover, we may devote resources to potential acquisitions or in-licensing opportunities that are never completed, or we may fail to realize the anticipated benefits of such efforts. We may not be able to acquire the rights to additional product candidates on terms that we find acceptable, or at all.

In addition, future acquisitions may entail numerous operational and financial risks, including:

- exposure to unknown liabilities;
- disruption of our business and diversion of our management's time and attention to develop acquired products or technologies;
- incurrence of substantial debt or dilutive issuances of securities to pay for acquisitions;
- higher than expected acquisition and integration costs;
- increased amortization expenses;
- difficulty and cost in combining the operations and personnel of any acquired businesses with our operations and personnel;
- impairment of relationships with key suppliers or customers of any acquired businesses due to changes in management and ownership; and
- inability to retain key employees of any acquired businesses.

Further, any product candidate that we acquire may require additional development efforts prior to commercial sale, including extensive clinical testing and approval by the FDA and applicable foreign regulatory authorities. All product candidates are prone to risks of failure typical of product development, including the possibility that a product candidate will not be shown to be sufficiently safe and effective for approval by regulatory authorities.

Our business involves the use of hazardous materials and we and our third-party manufacturers must comply with environmental laws and regulations, which can be expensive and restrict how we do business.

Our and our third-party manufacturers' activities involve the controlled storage, use and disposal of hazardous materials, including the components of our product candidates and other hazardous compounds. We and our manufacturers are subject to federal, state and local laws and regulations governing the use, manufacture, storage, handling and disposal of these hazardous materials. In the event of an accident, state or federal authorities may curtail the use of these materials and interrupt our

business operations. If we are subject to any liability as a result of our or our third-party manufacturers' activities involving hazardous materials, our business and financial condition may be adversely affected.

We may be subject to stockholder litigation, which would harm our business and financial condition.

We may have actions brought against us by stockholders relating to the Merger, past transactions, changes in our stock price or other matters. Any such actions could give rise to substantial damages, and thereby have a material adverse effect on our consolidated financial position, liquidity, or results of operations. Even if an action is not resolved against us, the uncertainty and expense associated with stockholder actions could harm our business, financial condition and reputation. Litigation can be costly, time-consuming and disruptive to business operations. The defense of lawsuits could also result in diversion of our management's time and attention away from business operations, which could harm our business.

Our results of operations and liquidity needs could be materially affected by market fluctuations and general economic conditions.

Our results of operations could be materially affected by economic conditions generally, both in the United States and elsewhere around the world. Recently, concerns over inflation, energy costs, geopolitical issues, the availability and cost of credit, the United States mortgage market and a declining residential real estate market in the United States have contributed to increased volatility and diminished expectations for the economy and the markets going forward. These factors, combined with volatile oil prices, declining business and consumer confidence and increased unemployment, have precipitated an economic recession. Domestic and international capital markets have also been experiencing heightened volatility and turmoil. These events and the continuing market upheavals may have an adverse effect on us. In the event of a continuing market downturn, our results of operations could be adversely affected. Our future cost of equity or debt capital and access to the capital markets could be adversely affected, and our stock price could decline. There may be disruption in or delay in the performance of our third-party contractors and suppliers. If our contractors, suppliers and partners are unable to satisfy their contractual commitments, our business could suffer. In addition, we maintain significant amounts of cash and cash equivalents at one or more financial institutions that are in excess of federally insured limits. Given the current instability of financial institutions, we may experience losses on these deposits.

Risks Related to Our Intellectual Property

It is difficult and costly to generate and protect our intellectual property and our proprietary technologies, and we may not be able to ensure their protection.

Our commercial success will depend in part on obtaining and maintaining patent, trademark, trade secret, and other intellectual property protection relating to our electroporation equipment and product candidates, as well as successfully defending these intellectual property rights against third-party challenges.

The patent positions of pharmaceutical and biotechnology companies can be highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved. The laws and regulations regarding the breadth of claims allowed in biotechnology patents has evolved over recent years and continues to undergo review and revision, both in the United States. The biotechnology patent situation outside the United States can be even more uncertain depending on the country. Changes in either the patent laws or in interpretations of patent laws in the United States and other countries may diminish the value of our intellectual property. Accordingly, we cannot predict the breadth of claims that may be allowed or enforced in our licensed patents, our patents or in third-party patents, nor can we predict the likelihood of our patents surviving a patent validity challenge.

The degree of future protection for our intellectual property rights is uncertain, because legal decision-making can be unpredictable, thereby often times resulting in limited protection, which may not adequately protect our rights or permit us to gain or keep our competitive advantage, or resulting in an invalid or unenforceable patent. For example:

- we, or the parties from whom we have acquired or licensed patent rights, may not have been the first to file the underlying patent applications or the first to make the inventions covered by such patents;
- the named inventors or co-inventors of patents or patent applications that we have licensed or acquired may be incorrect, which may give rise to inventorship and ownership challenges;
- others may develop similar or alternative technologies, or duplicate any of our products or technologies that may not be covered by our patents, including design-arounds;
- pending patent applications may not result in issued patents;

- the issued patents covering our products and technologies may not provide us with any competitive advantages or have any commercial value;

- the issued patents may be challenged and invalidated, or rendered unenforceable;
- the issued patents may be subject to reexamination, which could result in a narrowing of the scope of claims or cancellation of claims found unpatentable;
- we may not develop or acquire additional proprietary technologies that are patentable;
- our trademarks may be invalid or subject to a third party's prior use; or
- our ability to enforce our patent rights will depend on our ability to detect infringement, and litigation to enforce patent rights may not be pursued due to significant financial costs, diversion of resources, and unpredictability of a favorable result or ruling.

We depend, in part, on our licensors and collaborators to protect a portion of our intellectual property rights. In such cases, our licensors and collaborators may be primarily or wholly responsible for the maintenance of patents and prosecution of patent applications relating to important areas of our business. If any of these parties fail to adequately protect these products with issued patents, our business and prospects would be harmed significantly.

We also may rely on trade secrets to protect our technology, especially where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to protect. Although we use reasonable efforts to protect our trade secrets, our employees, consultants, contractors, outside scientific collaborators and other advisors may unintentionally or willfully disclose our trade secrets to competitors. Enforcing a claim that a third-party entity illegally obtained and is using any of our trade secrets is expensive and time consuming, and the outcome is unpredictable. In addition, courts outside the United States are sometimes less willing to protect trade secrets. Moreover, our competitors may independently develop equivalent knowledge, methods and know-how.

If we or our licensors fail to obtain or maintain patent protection or trade secret protection for our product candidates or our technologies, third parties could use our proprietary information, which could impair our ability to compete in the market and adversely affect our ability to generate revenues and attain profitability.

From time to time, U.S. and other policymakers have proposed reforming the patent laws and regulations of their countries. In September 2011 the America Invents Act (the Act) was signed into law. The Act's various provisions will go into effect over an 18-month period. The Act changes the current “first-to-invent” system to a system that awards a patent to the “first-inventor-to-file” for an application for a patentable invention. The Act also creates a procedure to challenge newly issued patents in the patent office via post-grant proceedings and new inter parties reexamination proceedings. These changes may make it easier for competitors to challenge our patents, which could result in increased competition and have a material adverse effect on our product sales, business and results of operations. The changes may also make it harder to challenge third-party patents and place greater importance on being the first inventor to file a patent application on an invention.

If we are sued for infringing intellectual property rights of third parties, it will be costly and time consuming, and an unfavorable outcome in that litigation would have a material adverse effect on our business.

Other companies may have or may acquire intellectual property rights that could be enforced against us. If they do so, we may be required to alter our technologies, pay licensing fees or cease activities. If our products or technologies infringe the intellectual property rights of others, they could bring legal action against us or our licensors or collaborators claiming damages and seeking to enjoin any activities that they believe infringe their intellectual property rights.

Because patent applications can take many years to issue, and there is a period when the application remains undisclosed to the public, there may be currently pending applications unknown to us or reissue applications that may later result in issued patents upon which our products or technologies may infringe. There could also be existing patents of which we are unaware that our products or technologies may infringe. In addition, if third parties file patent applications or obtain patents claiming products or technologies also claimed by us in pending applications or issued patents, we may have to participate in interference or derivation proceedings in the United States Patent and Trademark Office to determine priority or derivation of the invention. If third parties file oppositions in foreign countries, we may also have to participate in opposition proceedings in foreign tribunals to defend the patentability of our filed foreign patent applications.

If a third party claims that we infringe its intellectual property rights, it could cause our business to suffer in a number of ways, including:

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we may become involved in time-consuming and expensive litigation, even if the claim is without merit, the third party's patent is invalid or we have not infringed;

- we may become liable for substantial damages for past infringement if a court decides that our technologies infringe upon a third party's patent;

we may be enjoined by a court to stop making, selling or licensing our products or technologies without a license from a patent holder, which may not be available on commercially acceptable terms, if at all, or which may require us to pay substantial royalties or grant cross-licenses to our patents; and

- we may have to redesign our products so that they do not infringe upon others' patent rights, which may not be possible or could require substantial investment or time.

If any of these events occur, our business could suffer and the market price of our common stock may decline.

Risks Related to Our Common Stock

The price of our common stock is expected to be volatile and an investment in our common stock could decline substantially in value.

In light of our small size and limited resources, as well as the uncertainties and risks that can affect our business and industry, our stock price is expected to be highly volatile and can be subject to substantial drops, with or even in the absence of news affecting our business. Period to period comparisons are not indicative of future performance. The following factors, in addition to the other risk factors described in this annual report, and the potentially low volume of trades in our common stock, may have a significant impact on the market price of our common stock, some of which are beyond our control:

- developments concerning any research and development, clinical trials, manufacturing, and marketing efforts or collaborations;
- fluctuating public or scientific interest in the potential for influenza pandemic or other applications for our vaccine or other product candidates;
- our announcement of significant acquisitions, strategic collaborations, joint ventures or capital commitments;
- fluctuations in our operating results
- announcements of technological innovations;
- new products or services that we or our competitors offer;
- the initiation, conduct and/or outcome of intellectual property and/or litigation matters;
- changes in financial or other estimates by securities analysts or other reviewers or evaluators of our business;
- conditions or trends in bio-pharmaceutical or other healthcare industries;
- regulatory developments in the United States and other countries;
- negative perception of gene based therapy;
- changes in the economic performance and/or market valuations of other biotechnology and medical device companies;
- additions or departures of key personnel;
- sales or other transactions involving our common stock;
- sales or other transactions by executive officers or directors involving our common stock;
- changes in accounting principles;
- global unrest, terrorist activities, and economic and other external factors; and
- catastrophic weather and/or global disease pandemics.

The stock market in general has recently experienced relatively large price and volume fluctuations. In particular, the market prices of securities of smaller biotechnology and medical device companies have experienced dramatic fluctuations that often have been unrelated or disproportionate to the operating results of these companies. Continued market fluctuations could result in extreme volatility in the price of the common stock, which could cause a decline in the value of the common stock. In addition, price volatility may increase if the trading volume of our common stock remains limited or declines.

Anti-takeover provisions under our charter documents and Delaware law could delay or prevent a change of control which could limit the market price of our common stock.

Our amended and restated certificate of incorporation contains provisions that could delay or prevent a change of control of our company or changes in our board of directors that our stockholders might consider favorable. Some of these provisions include:

- the authority of our board of directors to issue shares of undesignated preferred stock and to determine the rights, preferences and privileges of these shares, without stockholder approval;
- all stockholder actions must be effected at a duly called meeting of stockholders and not by written consent; and
- the elimination of cumulative voting.

In addition, we are governed by the provisions of Section 203 of the Delaware General Corporate Law, which may prohibit certain business combinations with stockholders owning 15% or more of our outstanding voting stock. These and other provisions in our amended and restated certificate of incorporation, amended and restated bylaws and Delaware law could make it more difficult for stockholders or potential acquirers to obtain control of our board of directors or initiate actions that are opposed by the then-current board of directors, including to delay or impede a merger, tender offer or proxy contest involving our company. Any delay or prevention of a change of control transaction or changes in our board of directors could cause the market price of our common stock to decline.

We have never paid cash dividends on our common stock and we do not anticipate paying dividends in the foreseeable future.

We have paid no cash dividends on our common stock to date, and we currently intend to retain our future earnings, if any, to fund the development and growth of our business. In addition, the terms of any future debt or credit facility may preclude or limit our ability to pay any dividends. As a result, capital appreciation, if any, of our common stock will be your sole source of potential gain for the foreseeable future.

ITEM 1B. UNRESOLVED STAFF COMMENTS

We have no unresolved written comments from the SEC staff regarding our filings under the Exchange Act.

ITEM 2. PROPERTIES

We own no real property and have no plans to acquire any real property in the future. Our corporate headquarters is located at 1787 Sentry Park West in Blue Bell, Pennsylvania. This lease was signed on December 19, 2009 and was amended in February 2012 to extend the lease term for an additional year and increase the leased space by approximately 2,319 square feet. The lease will now run through June 30, 2017 for a total of approximately 8,761 square feet. The annual rent under the new lease terms was $122,000, $126,000, $175,000 and $180,000 for the first, second, third and fourth year, respectively, and will be $184,000 for the fifth year, $188,000 for the sixth year and $193,000 for the seventh year. At the end of the lease term, we have the option of renewing this lease for an additional three-year lease term at an annual rate equal to the fair market rental value of the property, as defined in the lease agreement.

The corporate office in San Diego is located at 10480 Wateridge Circle in San Diego, California. This lease was signed in April 2013 and we occupied the building in early December 2013. The initial term of the Lease runs through December 1, 2023 for a total of approximately 26,500 square feet. The base rent adjusts periodically throughout the ten year term of the Lease, with monthly payments ranging from zero to $82,945. In addition, we pay the landlord our share of operating expenses and a property management fee. We intend to use the facility for office and research and development purposes.

In March 2014, we entered into a new office lease in Plymouth Meeting, Pennsylvania. We expect to occupy the new space commencing in the third quarter of 2014 and sublet our existing facility. The initial term of the new lease is 11.5 years. The base rent adjusts periodically throughout the term of the Lease, with monthly payments ranging from $0 to $58,164. In addition, we will pay the landlord our share of operating expenses and a property management fee. We have paid the landlord a security deposit of $48,669.

We believe our current and future planned facilities will be adequate to meet our operating needs for the foreseeable future. Should we need additional space, we believe we will be able to secure additional space at commercially

reasonable rates.

ITEM 3. LEGAL PROCEEDINGS

Not applicable.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information

Our common stock is listed and traded on the NYSE MKT under the symbol "INO." The following table sets forth the quarterly high and low per share closing prices of our common stock for the two most recent fiscal years.

	Year Ended December 31,			
	2013		2012	
Period:	High	Low	High	Low
First Quarter	$0.82	$0.50	$0.74	$0.41
Second Quarter	$0.80	$0.51	$0.69	$0.40
Third Quarter	$3.00	$0.85	$0.64	$0.45
Fourth Quarter	$2.97	$1.73	$0.72	$0.46

As of March 13, 2014, we had approximately 209 common stockholders of record. This figure does not include beneficial owners who hold shares in nominee name. The closing price per share of our common stock on March 13, 2014 was $3.44, as reported on the NYSE MKT.

Dividends

The payment of any dividends on our common stock is within the discretion of our board of directors. We have not paid cash dividends on our common stock and the board of directors does not expect to declare cash dividends on the common stock in the foreseeable future.

Performance Graph

The graph below matches Inovio Pharmaceuticals, Inc.'s cumulative 5-year total shareholder return on common stock with the cumulative total returns of the NYSE MKT Composite index and the S & P SuperCap Biotechnology index. The graph assumes that the value of the investment in our common stock and in each of the indexes (including reinvestment of dividends) was $100 on December 31, 2008 and tracks it through December 31, 2013.

	12/08	12/09	12/10	12/11	12/12	12/13
Inovio Pharmaceuticals, Inc.	100.00	219.23	221.15	82.31	96.06	557.69
NYSE MKT Composite	100.00	135.53	175.07	179.96	190.69	200.56
S&P SuperCap Biotechnology	100.00	98.09	99.52	122.63	174.49	305.30

The stock price performance included in this graph is not necessarily indicative of future stock price performance.

ITEM 6. SELECTED FINANCIAL DATA

The following table sets forth our selected consolidated financial data for the periods indicated, derived from consolidated financial statements prepared in accordance with United States generally accepted accounting principles.

	Year Ended December 31, 2013	Year Ended December 31, 2012	Year Ended December 31, 2011	Year Ended December 31, 2010	Year Ended December 31, 2009
Operations Data:					
Revenue under collaborative research and development arrangements, including from affiliated entity	$9,664,547	$660,003	$567,856	$527,222	$5,055,305
Grants and miscellaneous revenue	3,802,799	3,458,649	9,227,401	5,617,483	4,064,806
Total revenues	13,467,346	4,118,652	9,795,257	6,144,705	9,120,111
Loss from operations	(19,544,332)	(23,493,532)	(21,638,540)	(19,220,162)	(13,957,755)
Interest and other income, net	132,214	166,113	34,285	147,406	30,329
Change in fair value of common stock warrants	(45,632,669)	1,982,620	8,690,658	2,403,924	(1,286,884)
(Loss) Gain on investment in affiliated entity	(1,038,745)	1,631,819	(2,390,498)	(969,914)	(9,244,614)
Net loss	(66,083,532)	(19,712,980)	(15,304,095)	(17,638,746)	(24,458,924)
Net loss attributable to non-controlling interest	55,084	44,025	51,150	24,950	47,439
Net loss attributable to Inovio Pharmaceuticals, Inc.	$(66,028,448)	$(19,668,955)	$(15,252,945)	$(17,613,796)	$(24,411,485)
Per common share—basic and diluted:					
Net loss	(0.36)	$(0.14)	$(0.12)	$(0.17)	$(0.33)
Net loss attributable to common stockholders	(0.36)	$(0.14)	$(0.12)	$(0.17)	$(0.33)
Balance Sheet Data:					
Cash and cash equivalents	$33,719,796	$5,646,021	$17,350,116	$19,998,489	$30,296,215
Short-term investments	18,905,608	8,034,001	12,863,420	1,849,271	10,397,530
Total assets	88,287,207	45,138,754	61,106,561	56,067,391	80,628,917
Current liabilities	28,966,456	8,376,577	11,043,021	6,436,708	19,350,038
Accumulated deficit	(295,788,577)	(229,760,129)	(210,091,174)	(194,838,229)	(177,224,433)
Total stockholders' equity	52,902,683	34,857,405	47,861,662	47,100,911	61,184,947

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This report contains forward-looking statements. These statements relate to future events or our future financial performance. In some cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "expect," "plan," "anticipate," "believe," "estimate," "predict," "potential" or "continue," the negative of such terms or other comparable terminology. These statements are only predictions. Actual events or results may differ materially. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievements. Moreover, neither we, nor any other person, assume responsibility for the accuracy and completeness of the forward-looking statements. We are under no obligation to update any of the forward-looking statements after the filing of this Annual Report to conform such statements to actual results or to changes in our expectations.

The following discussion of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and the related notes and other financial information appearing elsewhere in this Annual Report. Readers are also urged to carefully review and consider the various disclosures made by us which attempt to advise interested parties of the factors which affect our business, including without limitation the disclosures made in Item 1A of Part I of this Annual Report under the Caption "Risk Factors."

Risk factors that could cause actual results to differ from those contained in the forward-looking statements include but are not limited to: our history of losses; our lack of products that have received regulatory approval; uncertainties inherent in clinical trials and product development programs, including but not limited to the fact that pre-clinical and clinical results may not be indicative of results achievable in other trials or for other indications, that results from one study may not necessarily be reflected or supported by the results of other similar studies, that results from an animal study may not be indicative of results

achievable in human studies, that clinical testing is expensive and can take many years to complete, that the outcome of any clinical trial is uncertain and failure can occur at any time during the clinical trial process, and that our electroporation technology and DNA vaccines may fail to show the desired safety and efficacy traits in clinical trials; the availability of funding; the ability to manufacture vaccine candidates; the availability or potential availability of alternative therapies or treatments for the conditions targeted by us or our collaborators, including alternatives that may be more efficacious or cost-effective than any therapy or treatment that we and our collaborators hope to develop; whether our proprietary rights are enforceable or defensible or infringe or allegedly infringe on rights of others or can withstand claims of invalidity; and the impact of government healthcare proposals.

Overview

We are engaged in the discovery, development, and delivery of a new generation of vaccines and immune therapies, called synthetic vaccines, focused on cancers and infectious diseases. Our DNA-based immune therapies, in combination with our proprietary electroporation delivery, are generating best-in-class immune responses, with therapeutic T-cell responses exceeding other technologies in terms of magnitude, breadth, and response rate. The Company's DNA-based SynCon® technology is also designed to provide universal protection against known as well as new unmatched strains of pathogens such as influenza. Human data to date have shown a favorable safety profile. Our clinical programs include HPV/cervical cancer (therapeutic), avian influenza (preventive), prostate cancer (therapeutic), leukemia (therapeutic), HCV, HBV and HIV vaccines. We are advancing preclinical research for a universal seasonal/pandemic influenza vaccine as well as other products. Our partners and collaborators include Roche, University of Pennsylvania, Drexel University, National Microbiology Laboratory of the Public Health Agency of Canada, Program for Appropriate Technology in Health/Malaria Vaccine Initiative (“PATH” or “MVI”), National Institute of Allergy and Infectious Diseases (“NIAID”), Merck, University of Southampton, United States Military HIV Research Program (“USMHRP”), U.S. Army Medical Research Institute of Infectious Diseases (“USAMRIID”), HIV Vaccines Trial Network (“HVTN”) and Department of Homeland Security (“DHS”).

All of our potential human products are in research and development phases. We have not generated any revenues from the sale of any such products, and we do not expect to generate any such revenues for at least the next several years. We earn revenue from license fees and milestone revenue, collaborative research and development agreements, grants and government contracts. Our product candidates will require significant additional research and development efforts, including extensive preclinical and clinical testing. All product candidates that we advance to clinical testing will require regulatory approval prior to commercial use, and will require significant costs for commercialization. We may not be successful in our research and development efforts, and we may never generate sufficient product revenue to be profitable.

Recent Developments

In September 2013, we entered into a Collaborative, License, and Option Agreement (the “Agreement”) with F. Hoffmann-La Roche Ltd and Hoffmann-La Roche Inc. (“Roche”). Under the Agreement, we and Roche will co-develop highly-optimized, multi-antigen DNA immunotherapies targeting prostate cancer and hepatitis B (the “Products”). Roche acquired an exclusive worldwide license for our DNA-based vaccines INO-5150 (targeting prostate cancer) and INO-1800 (targeting hepatitis B) as well as the use of our CELLECTRA® electroporation technology for delivery of the vaccines. Roche also obtained an option to license additional vaccines in connection with a collaborative research program in prostate cancer.

Under the terms of the Agreement, we will receive from Roche payments based on the achievement of clinical event based payments and royalties based on sales of the Products. In October 2013, Roche made an upfront payment of $10.0 million to us, and will also provide preclinical R&D support and payments for near-term regulatory events as well as payments upon reaching certain development and commercial events potentially up to $412.5 million. Additional development event based payments could also be made to us if Roche pursues other indications with INO-5150 or INO-1800. In addition, we are entitled to receive up to double-digit tiered royalties on product sales.

In April 2013 we entered into an office lease (the “Lease”) with BMR-Wateridge LP, located in San Diego, California. We occupied the facility in early December 2013. The initial term of the Lease is ten years. We intend to use the facility for office and research and development purposes. The base rent adjusts periodically throughout the ten year term of the Lease, with monthly payments ranging from zero to $82,945. In addition, we pay the landlord our share of

operating expenses and a property management fee and have paid a security deposit of $64,000.

In March 2013, our collaborator ChronTech Pharma AB reported data from its phase II study of its early-generation, single antigen hepatitis C virus (HCV) vaccine delivered using our MedPulser® delivery device in combination with a drug regimen. The study did not achieve results showing a statistically significant difference in efficacy compared to the drug regimen alone. We have ceased all activities relating to this collaboration. We have achieved T-cell responses with our proprietary, multi-antigen HCV DNA vaccine and CELLECTRA® delivery device that are far superior to immunogenicity data generated by ChronTech and which included the observation of functional T cells in the liver. In October 2013, our affiliate

VGX Int'l launched a phase I study of this HCV vaccine.

The University of Southampton has indicated that its UK phase II clinical study of its WT1 leukemia vaccine delivered using our electroporation technology is not currently recruiting new subjects due to an interruption in sponsor funding. Efforts are under way to re-establish funding, however, the study is on hold pending the outcome of these refunding efforts. There have been no safety concerns identified during the study. Our aim is to maximize shareholder value by advancing our wholly-owned, integrated proprietary SynCon® vaccine and electroporation technology platform. We have designed a SynCon® cancer vaccine candidate based on the WT1 antigen and have generated promising preclinical data. This new candidate will be a part of multiple cancer immunotherapeutic programs in our oncology pipeline.

The Company continues to focus on its most important commercial opportunities and proprietary programs funded by third parties. To build on promising preclinical and clinical data from our universal flu vaccine program, we are actively seeking additional grant funding and partnerships to further develop our potentially paradigm-changing flu products.

In March 2013, we completed an underwritten offering of 27,377,266 shares of our common stock and warrants to purchase an aggregate of up to 13,688,633 shares of common stock. The shares and warrants were sold in units at a price of $0.55 per unit, with each unit consisting of one share of common stock and a warrant to purchase 0.50 shares of common stock at an exercise price of $0.7936 per share. The warrants have a term of five and one-half years. The net proceeds, after deducting the underwriters' discounts and other offering expenses, were approximately $14.0 million.

As of December 31, 2013, we had an accumulated deficit of $295.8 million. We expect to continue to incur substantial operating losses in the future due to our commitment to our research and development programs, the funding of preclinical studies, clinical trials and regulatory activities and the costs of general and administrative activities.

Critical Accounting Policies

The SEC defines critical accounting policies as those that are, in management’s view, important to the portrayal of our financial condition and results of operations and require management’s judgment. Our discussion and analysis of our financial condition and results of operations is based on our audited consolidated financial statements, which have been prepared in accordance with U.S. GAAP. There have been no changes to our critical accounting policies during the year ended December 31, 2013 other than the adoption of recent accounting pronouncements discussed below. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses. We base our estimates on experience and on various assumptions that we believe are 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 those estimates. Our critical accounting policies include:

Revenue Recognition.

Grant revenue

We receive non-refundable grants under available government programs. Government grants towards current expenditures are recorded as revenue when there is reasonable assurance that we have complied with all conditions necessary to receive the grants, collectability is reasonably assured, and as the expenditures are incurred.

License fee and milestone revenue

We have adopted a strategy of co-developing or licensing our gene delivery technology for specific genes or specific medical indications. Accordingly, we have entered into collaborative research and development agreements and have received funding for pre-clinical research and clinical trials. Prior to the adoption of the Financial Accounting Standards Board's (“FASB”) Accounting Standards Update (“ASU”) No. 2009-13, Revenue Recognition (Topic 605): Multiple-Deliverable Revenue Arrangements, we analyzed our multiple element arrangements to determine whether the identified deliverables could be accounted for individually as separate units of accounting. The delivered item(s) were considered a separate unit of accounting if all of the following criteria were met: (1) the delivered item(s) has value to the customer on a standalone basis; (2) there is objective and reliable evidence of the fair value of the undelivered item(s); and (3) if the arrangement includes a general right of return relative to the delivered item, delivery or performance of the undelivered item(s) is considered probable and substantially in our control. If these

criteria were not met, the deliverable was combined with other deliverables in the arrangement and accounted for as a combined unit of accounting.

For new collaborative agreements or material modifications of existing collaborative agreements entered into after December 31, 2010, we follow the provisions of ASU No. 2009-13. In order to account for the multiple-element arrangements, we identify the deliverables included within the agreement and evaluate which deliverables represent separable units of accounting. Analyzing the arrangement to identify deliverables requires the use of judgment, and each deliverable may be an obligation to deliver services, a right or license to use an asset, or another performance obligation. A delivered item is

considered a separate unit of accounting when the delivered item has value to the collaborator on a standalone basis based on the consideration of the relevant facts and circumstances for each arrangement.

Arrangement consideration is allocated at the inception of the agreement to all identified units of accounting based on their relative selling price. The relative selling price for each deliverable is determined using vendor specific objective evidence ("VSOE"), of selling price or third-party evidence of selling price if VSOE does not exist. If neither VSOE nor third-party evidence of selling price exists, we use our best estimate of the selling price for the deliverable. The amount of allocable arrangement consideration is limited to amounts that are fixed or determinable. The consideration received is allocated among the separate units of accounting, and the applicable revenue recognition criteria are applied to each of the separate units. Changes in the allocation of the sales price between delivered and undelivered elements can impact revenue recognition but do not change the total revenue recognized under any agreement.
Upfront license fee payments are recognized upon delivery of the license if facts and circumstances dictate that the license has standalone value from the undelivered items, the relative selling price allocation of the license is equal to or exceeds the upfront license fee, persuasive evidence of an arrangement exists, our price to the collaborator is fixed or determinable, and collectability is reasonably assured. Upfront license fee payments are deferred if facts and circumstances dictate that the license does not have standalone value. The determination of the length of the period over which to defer revenue is subject to judgment and estimation and can have an impact on the amount of revenue recognized in a given period.
Prior to the adoption of ASU No. 2010-17, Revenue Recognition (Topic 605): Milestone Method of Revenue Recognition ("Milestone Method"), we recognized non-refundable milestone payments upon the achievement of specified milestones upon which we had earned the milestone payment, provided the milestone payment was substantive in nature and the achievement of the milestone was not reasonably assured at the inception of the agreement. We deferred payments for milestone events that were reasonably assured and recognized them ratably over the minimum remaining period of our performance obligations. Payments for milestones that were not reasonably assured were treated as the culmination of a separate earnings process and were recognized as revenue when the milestones were achieved.
Effective January 1, 2011, we adopted on a prospective basis the Milestone Method of ASU No. 2010-17. Under the Milestone Method, we will recognize consideration that is contingent upon the achievement of a milestone in its entirety as revenue in the period in which the milestone is achieved only if the milestone is substantive in its entirety. A milestone is considered substantive when it meets all of the following criteria:

1. The consideration is commensurate with either the entity's performance to achieve the milestone or the enhancement of the value of the delivered item(s) as a result of a specific outcome resulting from the entity's performance to achieve the milestone,
2. The consideration relates solely to past performance, and
3. The consideration is reasonable relative to all of the deliverables and payment terms within the arrangement.

A milestone is defined as an event (i) that can only be achieved based in whole or in part on either the entity's performance or on the occurrence of a specific outcome resulting from the entity's performance, (ii) for which there is substantive uncertainty at the date the arrangement is entered into that the event will be achieved and (iii) that would result in additional payments being due to the Company.
Research and Development Expenses. Since our inception, most of our activities have consisted of research and development efforts related to developing our electroporation technologies and DNA vaccines. Research and development expenses consist of expenses incurred in performing research and development activities including salaries and benefits, facilities and other overhead expenses, clinical trials, contract services and other outside expenses. Research and development expenses are charged to operations as they are incurred.
Valuation and Impairment Evaluations of Goodwill and Intangible Assets. Goodwill represents the excess of acquisition cost over the fair value of the net assets of acquired businesses. As of December 31, 2013, our intangible assets resulting from the acquisition of VGX and Inovio AS, and additional intangibles including previously capitalized patent costs and license costs, net of accumulated amortization, totaled $5.7 million. Intangible assets are amortized over their estimated useful lives ranging from 5 to 18 years. We are concurrently conducting pre-clinical, Phase I, and Phase II trials using acquired intangibles, and we have entered into certain significant licensing

agreements for use of these acquired intangibles.

Historically we have recorded patents at cost and amortized these costs using the straight-line method over the expected useful lives of the patents or 17 years, whichever is less. Patent costs consist of the consideration paid for patents and related legal costs. Effective June 1, 2009, in connection with our acquisition of VGX, all new patent costs are being expensed as incurred. Patent costs capitalized as of June 1, 2009 will continue to be amortized over the expected life of the patent. The

effect of this change was immaterial to prior periods. We record license costs based on the fair value of consideration paid and amortize using the straight-line method over the shorter of the expected useful life of the underlying patents or the term of the related license agreement to the extent the license has an alternative future use.

The determination of the value of such intangible assets requires management to make estimates and assumptions that affect our consolidated financial statements. We assess potential impairments to intangible assets when there is evidence that events or changes in circumstances indicate that the carrying amount of an asset may not be recovered. Our judgments regarding the existence of impairment indicators and future cash flows related to intangible assets are based on operational performance of our acquired businesses, market conditions and other factors. If impairment is indicated, we reduce the carrying value of the intangible asset to fair value. While our current and historical operating and cash flow losses are potential indicators of impairment, we believe the future cash flows to be received from our intangible assets will exceed the intangible assets' carrying value, and accordingly, we have not recognized any impairment losses through December 31, 2013.

Goodwill is not amortized but instead is measured for impairment annually, or when events indicate that impairment exists. Our accounting policy with respect to reviewing goodwill for impairment is a two step process. The first step of the impairment test compares the fair value of our reporting unit with its carrying value including allocated goodwill. If the carrying value of our reporting unit exceeds its fair value, then the second step of the impairment test is performed to measure the impairment loss, if any. We test goodwill for impairment at the entity level, which is considered our reporting unit. Our estimate of fair value is determined using both the Discounted Cash Flow method of the Income Approach and the Guideline Public Company method of the Market Approach. The Discounted Cash Flow method estimates future cash flows of our business for a certain discrete period and then discounts them to their present value. The Guideline Public Company method computes value indicators (“multiples”) from the operating data of the selected publicly traded guideline companies. After these multiples were evaluated, appropriate value indicators were selected and applied to the operating statistics of the reporting unit to arrive at indications of value. Specifically, we relied upon the application of Total Invested Capital based valuation multiples for each guideline company. In applying the Income and Market Approaches, premiums and discounts were determined and applied to estimate the fair values of the reporting unit. To arrive at the indicated value of equity under each approach, we then assigned a relative weighting to the resulting values from each approach to determine whether the carrying value of the reporting unit exceeds its fair value, thus requiring step two of the impairment test.

We conduct the impairment test annually on November 30th for each fiscal year for which goodwill is evaluated for impairment. We are also aware of the requirement to evaluate goodwill for impairment at other times should circumstances arise. To date, we have concluded that the fair value of the reporting unit exceeded the carrying value and therefore, step two of the impairment test has never been performed.

Although there are inherent uncertainties in this assessment process, the estimates and assumptions we use are consistent with our internal planning. If these estimates or their related assumptions change in the future, we may be required to record an impairment charge on all or a portion of our goodwill and intangible assets. Furthermore, we cannot predict the occurrence of future impairment-triggering events nor the impact such events might have on our reported asset values. Future events could cause us to conclude that impairment indicators exist and that goodwill or other intangible assets associated with our acquired businesses are impaired. Any resulting impairment loss could have an adverse impact on our results of operations.

Stock-based Compensation. We have equity incentive plans under which we have granted incentive stock options, restricted stock units and non-qualified stock options.

Our employee stock-based compensation cost is estimated at the grant date based on the fair-value of the award and is recognized as an expense ratably over the requisite service period of the award. Determining the appropriate fair-value model and calculating the fair value of stock-based awards at the grant date requires considerable judgment, including estimating stock price volatility, expected option life and forfeiture rates. We develop our estimates based on historical data. If factors change and we employ different assumptions in future periods, the compensation expense that we record may differ significantly from what we have recorded in the current period. A small change in the estimates used may have a relatively large change in the estimated valuation. We use the Black-Scholes pricing model to value stock option awards. We recognize compensation expense using the straight-line amortization method.

Our non-employee stock-based compensation awards are measured at either the fair value of the consideration received or the fair value of the equity instruments issued, whichever is more reliably measurable. If the fair value of the equity instruments issued is used, it is measured at each reporting date using the stock price and other measurement assumptions as of the earlier of (i) the date at which a commitment for performance by the counterparty to earn the equity instruments is reached, or (ii) the date at which the counterparty's performance is completed.
Registered Common Stock Warrants. We account for registered common stock warrants pursuant to the authoritative guidance on accounting for derivative financial instruments indexed to, and potentially settled in, a company's own stock, on the understanding that in compliance with applicable securities laws, the registered warrants require the issuance of registered

securities upon exercise and do not sufficiently preclude an implied right to net cash settlement. We classify registered warrants on the consolidated balance sheet as a current liability, which is revalued at each balance sheet date subsequent to the initial issuance. Determining the appropriate fair-value model and calculating the fair value of registered warrants requires considerable judgment including estimating stock price volatility and expected warrant life. We develop our estimates based on historical data. A small change in the estimates used may have a relatively large change in the estimated valuation. We use the Black-Scholes pricing model to value the registered warrants. Changes in the fair market value of the warrants are reflected in the consolidated statement of operations as "Change in fair value of common stock warrants."

Recent Accounting Pronouncements

Information regarding recent accounting pronouncements is contained in Note 2 to the Consolidated Financial Statements, included elsewhere in this report.

Results of Operations

Comparison of Years Ended December 31, 2013 and 2012

The consolidated financial data for the years ended December 31, 2013 and December 31, 2012 is presented in the following table and the results of these two periods are used in the discussion thereafter.

	December 31, 2013	December 31, 2012	Increase/ (Decrease) $	Increase/ (Decrease) %
Revenues:				
Revenue under collaborative research and development arrangements, including from affiliated entity	$9,664,547	$660,003	$9,004,544	1,364 %
Grants and miscellaneous revenue	3,802,799	3,458,649	344,150	10
Total revenues	13,467,346	4,118,652	9,348,694	227
Operating expenses:				
Research and development	21,368,604	17,984,825	3,383,779	19
General and administrative	13,643,074	10,778,359	2,864,715	27
Gain on sale of assets	(2,000,000)	(1,151,000)	(849,000)	74
Total operating expenses	33,011,678	27,612,184	5,399,494	20
Loss from operations	(19,544,332)	(23,493,532)	3,949,200	17
Interest and other income, net	132,214	166,113	(33,899)	(20)
Change in fair value of common stock warrants	(45,632,669)	1,982,620	(47,615,289)	(2,402)
(Loss) Gain on investment in affiliated entity	(1,038,745)	1,631,819	(2,670,564)	164
Net loss	(66,083,532)	(19,712,980)	(46,370,552)	(235)
Net loss attributable to non-controlling interest	55,084	44,025	11,059	25
Net loss attributable to Inovio Pharmaceuticals, Inc.	$(66,028,448)	$(19,668,955)	$(46,359,493)	(236)%

Revenue

Revenue primarily consists of revenue under collaborative research and development arrangements and grants and government contracts. Our total revenue increased $9.3 million or 227% for the year ended December 31, 2013, as compared to the year ended December 31, 2012.

The $9.0 million increase in revenue under collaborative research and development arrangements for the year ended December 31, 2013 as compared to 2012 was primarily due to due to the revenue recognized from our Agreement with Roche entered into in September 2013 (See Note 3).

The $344,000 increase in grants and miscellaneous revenue for the year ended December 31, 2013 as compared to 2012, was primarily attributable to $726,000 of revenue recognized under our PATH Malaria Vaccine Initiative ("MVI") contract during the year ended December 31, 2013 as compared to $85,000 of revenue recognized for the same period in 2012, due to the initiation of the third amendment in October 2012. There were also increases in revenue recognized from our NIH research project grant, our subcontract with the University of Pennsylvania and our U.S. Department of Defense SBIR grant of $152,000, $142,000 and $126,000, respectively, for the year ended December 31, 2013 as compared to the same period in

2012, among other variances. These increases were offset by lower revenue of $740,000 recognized from our contract with the NIAID.

Research and Development Expenses

The $3.4 million increase in research and development expenses for the year ended December 31, 2013 as compared to 2012 was primarily due to $1.3 million in expenses incurred related to the Roche Agreement, which includes $1.1 million in sub-license fees paid based on the up-front payment received from Roche. The increase was also attributable to $915,000 in higher compensation and related expenses, $606,000 in higher costs related to work performed for the MVI contract, $304,000 in higher engineering and professional services and $170,000 in higher clinical trial expenses, among other variances.

General and Administrative Expenses

General and administrative expenses include business development expenses and the amortization of intangible assets. The $2.9 million increase in general and administrative expenses for the year ended December 31, 2013 as compared to the year ended December 31, 2012 was primarily due to an increase in consultant stock-based compensation, rent expense related to deferred rent on the new building lease, compensation and related expenses, outside consulting services, corporate and patent legal fees and transaction costs associated with the issuance of warrants in the March 2013 financing of $554,000, $506,000, $494,000, $394,000, $357,000 and $316,000, respectively, among other variances.

Stock-based Compensation

Employee stock-based compensation cost is measured at the grant date, based on the fair value of the award reduced by estimated forfeitures, and is recognized as expense over the employee's requisite service period. Total employee compensation cost for our stock plans for the years ended December 31, 2013 and 2012 was $1.2 million and $1.2 million, of which $550,000 and $555,000 was included in research and development expenses and $605,000 and $638,000 was included in general and administrative expenses, respectively. At December 31, 2013, there was $956,000 of total unrecognized compensation cost related to unvested stock options, which we expect to recognize over a weighted-average period of 1.8 years, as compared to $944,000 for the year ended December 31, 2012 expected to be recognized over a weighted-average period of 1.9 years. Total stock-based compensation for options granted to non-employees for the years ended December 31, 2013 and 2012 was $714,000 and $153,000, respectively.

Interest and Other Income, net

Interest and other income, net, decreased by $34,000 for the year ended December 31, 2013 as compared to 2012.

Change in fair value of common stock warrants

The change in fair value of common stock warrants for the years ended December 31, 2013 and 2012 was $(45.6) million and $2.0 million, respectively. The significant variance is due to the revaluation of registered common stock warrants issued by us in March 2013, December 2011, January 2011 and June 2009. We revalue warrants at each balance sheet date to fair value. Warrants that were exercised during the period were revalued the day prior to exercise and reclassified into stockholders' equity upon exercise. The change in fair value was primarily due to the significant increase in Company stock price during the year. If unexercised, the warrants will expire at various dates between July 2014 and September 2018.

Gain (Loss) from investment in affiliated entity

The gain (loss) is a result of the change in the fair market value of the investment in VGX Int'l for the year ended December 31, 2013.

Gain on Sale of Assets

The gain on sale of assets is related to the March 2011 Asset Purchase Agreement with OncoSec. The gain recorded during the year ended December 31, 2013 is related to the cash received during the year related to the sale, and the gain recorded during 2012 is related to the cash received related to the sale as well as the initial fair value of the warrants received in connection with the second amendment to the Asset Purchase Agreement signed in March 2012 (See Note 5).

Income Taxes

Since inception, we have incurred operating losses and accordingly have not recorded a provision for income taxes for any of the periods presented. As of December 31, 2013, we had net operating loss carry forwards for federal, California and Pennsylvania income tax purposes of approximately $122.4 million, $38.9 million and $75.6 million,

respectively, net of the

net operating losses that will expire due to IRC Section 382 limitations. We also had federal and state research and development tax credits of approximately $2.0 million and $2.1 million, respectively, net of the federal research and development credits that will expire due to IRC Section 383 limitations. If not utilized, the net operating losses and credits will begin to expire in 2018. Utilization of net operating losses and credits are subject to a substantial annual limitation due to ownership change limitations provided by the Internal Revenue Code of 1986, as amended.

Comparison of Years Ended December 31, 2012 and 2011

The consolidated financial data for the years ended December 31, 2012 and December 31, 2011 is presented in the following table and the results of these two periods are used in the discussion thereafter.

	December 31, 2012	December 31, 2011	Increase/ (Decrease) $	Increase/ (Decrease) %
Revenues:				
Revenue under collaborative research and development arrangements, including from affiliated entity	$660,003	$567,856	$92,147	16 %
Grants and miscellaneous revenue	3,458,649	9,227,401	(5,768,752)	(63)
Total revenues	4,118,652	9,795,257	(5,676,605)	(58)
Operating expenses:				
Research and development	17,984,825	20,032,001	(2,047,176)	(10)
General and administrative	10,778,359	11,988,796	(1,210,437)	(10)
Gain on sale of assets	(1,151,000)	(587,000)	(564,000)	96
Total operating expenses	27,612,184	31,433,797	(3,821,613)	(12)
Loss from operations	(23,493,532)	(21,638,540)	(1,854,992)	(9)
Interest and other income, net	166,113	34,285	131,828	385
Change in fair value of common stock warrants	1,982,620	8,690,658	(6,708,038)	(77)
Gain (Loss) on investment in affiliated entity	1,631,819	(2,390,498)	4,022,317	168
Net loss	(19,712,980)	(15,304,095)	(4,408,885)	(29)
Net loss attributable to non-controlling interest	44,025	51,150	(7,125)	(14)
Net loss attributable to Inovio Pharmaceuticals, Inc.	$(19,668,955)	$(15,252,945)	$(4,416,010)	(29)%

Revenue

Revenue primarily consists of license fees, revenue under collaborative research and development arrangements and grants and government contracts. Our total revenue decreased $5.7 million or 58% for the year ended December 31, 2012, as compared to the year ended December 31, 2011 primarily due to decreases in grants and miscellaneous revenue.

Revenue under collaborative research and development arrangements was $660,000 for the year ended December 31, 2012, as compared to $568,000 for the year ended December 31, 2011. The increase in 2012 was related to work performed under our Collaborative Development and License Agreement with VGX Int'l. Under the Agreement, we will co-develop with VGX Int'l our SynCon® therapeutic vaccines for hepatitis B and C infections. This increase was slightly offset by lower revenue recognized from various smaller license agreements.

The $5.8 million decrease in grants and miscellaneous revenue for the year ended December 31, 2012 as compared to 2011, was primarily due to the timing of scheduled contract payments which resulted in lower revenues recognized from our contract with the NIAID of $2.8 million for the year ended December 31, 2012 as compared to $7.8 million for the year ended December 31, 2011. The decrease was also attributable to lower revenue of $656,000 and $394,000 recognized under our PATH Malaria Vaccine Initiative (“MVI”) contract and subcontract with Drexel University,

respectively, during the year ended December 31, 2012 as compared to the year ended December 31, 2011.

Research and Development Expenses

The $2.0 million decrease in research and development expenses for the year ended December 31, 2012 as compared to 2011 was primarily due to $3.1 million in lower direct costs related to work performed for the NIAID contract and $908,000 in

lower clinical expenses related to biologics manufacturing and laboratory processing. These decreases were partially offset by $1.6 million in higher compensation and related expenses due to increased employee headcount, $257,000 in higher contract labor for scientific and clinical advisory services, and $202,000 in higher engineering and professional services for device improvements, among other variances.

General and Administrative Expenses

General and administrative expenses include business development expenses and the amortization of intangible assets. The $1.2 million decrease in general and administrative expenses for the year ended December 31, 2012 as compared to the year ended December 31, 2011 was primarily due to a $843,000 decrease in severance expenses, a $512,000 decrease in employee stock-based compensation due to no severance related stock option expense, and a $369,000 decrease in compensation and related expenses. These decreases were partially offset by an increase in legal expenses, investor relations outside services, and accounting fees of $226,000, $137,000 and $122,000, respectively, among other variances.

Stock-based Compensation

Employee stock-based compensation cost is measured at the grant date, based on the fair value of the award reduced by estimated forfeitures, and is recognized as expense over the employee's requisite service period. Total employee compensation cost for our stock plans for the years ended December 31, 2012 and 2011 was $1.2 million and $1.6 million, of which $555,000 and $472,000 was included in research and development expenses and $638,000 and $1.1 million was included in general and administrative expenses, respectively. The decrease was primarily due to a lower valuation of the employee stock options granted during the year and no severance related stock-based compensation expense recognized in 2012. At December 31, 2012, there was $944,000 of total unrecognized compensation cost related to unvested stock options, which we expect to recognize over a weighted-average period of 1.9 years, as compared to $981,000 for the year ended December 31, 2011 expected to be recognized over a weighted-average period of 1.7 years. Total stock-based compensation for options granted to non-employees for the years ended December 31, 2012 and 2011 was $153,000 and $33,000, respectively.

Interest and Other Income, net

The $132,000 increase in interest and other income, net, for the year ended December 31, 2012 as compared to 2011, was primarily due to a higher interest rate earned on our short-term investment accounts.

Change in fair value of common stock warrants

The change in fair value of common stock warrants for the years ended December 31, 2012 and 2011 was $2.0 million and $8.7 million, respectively. The variance is primarily due to the revaluation of registered common stock warrants issued by us in January 2011 and December 2011. We revalue warrants at each balance sheet date to fair value.

Gain (Loss) from investment in affiliated entity

The gain (loss) is a result of the change in the fair market value of the investment in VGX Int'l for the year ended December 31, 2012.

Gain on Sale of Assets

The gain on sale of assets is related to the March 2011 Asset Purchase Agreement with OncoSec. The gain is related to the cash received related to the sale as well as the initial fair value of the warrants received in connection with the first and second amendments to the Asset Purchase Agreement signed in September 2011 and March 2012, respectively (See Note 5).

Income Taxes

Since inception, we have incurred operating losses and accordingly have not recorded a provision for income taxes for any of the periods presented. As of December 31, 2012, we had net operating loss carry forwards for federal, California and Pennsylvania income tax purposes of approximately $108.0 million, $37.4 million and $61.0 million, respectively, net of the net operating losses that will expire due to IRC Section 382 limitations. We also had federal and state research and development tax credits of approximately $863,000 and $1.9 million, respectively, net of the federal research and development credits that will expire due to IRC Section 383 limitations. If not utilized, the net operating losses and credits will begin to expire in 2018. Utilization of net operating losses and credits are subject to a substantial annual limitation due to ownership change limitations provided by the Internal Revenue Code of 1986, as amended.

53

Liquidity and Capital Resources

Historically, our primary uses of cash have been to finance research and development activities including clinical trial activities in the oncology, DNA vaccines and other immunotherapy areas of our business. Since inception, we have satisfied our cash requirements principally from proceeds from the sale of equity securities.

Working Capital and Liquidity

As of December 31, 2013 we had cash and short term investments of $52.6 million and working capital of $29.7 million, as compared to $13.7 million and $7.6 million, respectively, as of December 31, 2012. The increase in cash and short-term investments during the year ended December 31, 2013 was primarily due to proceeds received from warrant and stock option exercises, our ATM Sales Agreement and March 2013 financing, offset by expenditures related to our research and development activities and various general and administrative expenses related to legal, consultants, accounting and audit, and corporate development. The increase in working capital is offset by the increase in the valuation of our registered common stock warrants that are classified as a current liability on the consolidated balance sheet.

Net cash used in operating activities was $15.4 million and $22.3 million for the years ended December 31, 2013 and 2012, respectively.

Net cash (used in) provided by investing activities was $(9.2) million and $5.3 million for the years ended December 31, 2013 and 2012, respectively. The variance was primarily the result of timing differences in short-term investment purchases, sales and maturities.

Net cash provided by financing activities was $52.7 million and $5.3 million for the years ended December 31, 2013 and 2012, respectively. The increase was related to proceeds received from our March 2013 financing, warrant and stock option exercises and our ATM Sales Agreement during the year.

On March 4, 2014, we closed an underwritten public offering of 21,810,900 shares of our common stock, including 2,844,900 shares of common stock issued pursuant to the underwriter’s exercise of its overallotment option, at the public offering price of $2.90 per share. The net proceeds, after deducting the underwriter’s discounts and commission and other estimated offering expenses, were approximately $59.2 million.

During the year ended December 31, 2013, warrants and stock options to purchase 23,090,211 shares of common stock were exercised for total proceeds to the Company of $19.8 million.

In March 2013, we completed an underwritten offering of 27,377,266 shares of our common stock and warrants to purchase an aggregate of up to 13,688,633 shares of common stock. The shares and warrants were sold in units at a price of $0.55 per unit, with each unit consisting of one share of common stock and a warrant to purchase 0.50 shares of common stock at an exercise price of $0.7936 per share. The warrants have a term of five and one-half years. The net proceeds, after deducting the underwriters' discounts and other offering expenses, were approximately $14.0 million.

In June 2012, we entered into an "at-the-market" (ATM) sales agreement (the "Sales Agreement”) with an outside placement agent (the “Placement Agent”) to sell shares of our common stock with aggregate gross proceeds of up to $25.0 million from time to time, through an ATM equity offering program under which the Placement Agent will act as sales agent. During the year ended December 31, 2013, we sold 15,700,668 shares of common stock under the ATM Sales Agreement for net proceeds of $18.9 million. As of December 31, 2012 we had sold 9,344,611 shares of common stock under the ATM Sales Agreement for net proceeds of $5.3 million. As of December 31, 2013, we have exhausted all available proceeds under this Sales Agreement.

As of December 31, 2013, we had an accumulated deficit of $295.8 million. We have operated at a loss since 1994, and we expect to continue to operate at a loss for some time. The amount of the accumulated deficit will continue to increase, as it will be expensive to continue research and development efforts. If these activities are successful and if we receive approval from the FDA to market our DNA vaccine products, then we will need to raise additional funding to market and sell the approved vaccine products and equipment. We cannot predict the outcome of the above matters at this time. We are evaluating potential collaborations as an additional way to fund operations. We believe that current cash and cash equivalents plus short-term investments are sufficient to meet planned working capital requirements through the end of 2017. We will continue to rely on outside sources of financing to meet our capital

needs beyond this time.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements that have or are reasonably likely to have a current or future effect on our financial condition, changes in financial condition, revenue, expenses, and results of operations, liquidity, capital expenditures or capital resources.

Contractual Obligations

As of December 31, 2013, we did not have any other material long-term debt or other known contractual obligations, except for the operating leases for our facilities, which expire in 2017 through 2023, and operating leases for copiers, which expire in 2015 through 2017.

We are contractually obligated to make the following operating lease payments as of December 31, 2013:

	Total	Less than 1 year	1 – 3 years	3 – 5 years	More than 5 years
Operating lease obligations	$7,754,000	$233,000	$1,494,000	$1,407,000	$4,620,000

In the normal course of business, we are a party to a variety of agreements pursuant to which we may be obligated to indemnify the other party. It is not possible to predict the maximum potential amount of future payments under these types of agreements due to the conditional nature of our obligations and the unique facts and circumstances involved in each particular agreement. Historically, payments made by us under these types of agreements have not had a material effect on our business, consolidated results of operations or financial condition.

ITEM 7A. QUALITATIVE AND QUANTITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Risk

Market risk represents the risk of loss that may impact our consolidated financial position, results of operations or cash flows due to adverse changes in financial and commodity market prices and rates. We are exposed to market risk primarily in the area of changes in United States interest rates and conditions in the credit markets, and the recent fluctuations in interest rates and availability of funding in the credit markets primarily impact the performance of our investments. We do not have any material foreign currency or other derivative financial instruments. Under our current policies, we do not use interest rate derivative instruments to manage exposure to interest rate changes. We attempt to increase the safety and preservation of our invested principal funds by limiting default risk, market risk and reinvestment risk. We mitigate default risk by investing in investment grade securities.

Fair Value measurements

We account for our common stock warrants pursuant to the authoritative guidance on accounting for derivative financial instruments indexed to, and potentially settled in, a company's own stock, on the understanding that in compliance with applicable securities laws, the registered warrants require the issuance of registered securities upon exercise and do not sufficiently preclude an implied right to net cash settlement. We classify registered warrants on the consolidated balance sheet as a current liability that is revalued at each balance sheet date subsequent to the initial issuance.

The investment in affiliated entity represents our ownership interest in the Korean based company, VGX Int'l. We report this investment at fair value on the consolidated balance sheet using the closing price of VGX Int'l's shares of common stock as listed on the Korean Stock Exchange.

Common stock warrants that we have received to purchase shares of OncoSec are classified on the consolidated balance sheet as a long-term asset that is revalued at each balance sheet date subsequent to the initial receipt.

Foreign Currency Risk

We have operated primarily in the United States and most transactions during the year ended December 31, 2013, have been made in United States dollars. Accordingly, we have not had any material exposure to foreign currency rate fluctuations, with the exception of the valuation of our equity investment in VGX Int'l which is denominated in South Korean Won. We do not have any foreign currency hedging instruments in place.

Certain transactions related to us are denominated primarily in foreign currencies, including Euros, British Pounds, Canadian Dollars and South Korean Won. As a result, our financial results could be affected by factors such as changes in foreign currency exchange rates or weak economic conditions in foreign markets where we conduct business, including the impact of the existing crisis in the global financial markets in such countries and the impact on both the United States dollar and the noted foreign currencies.

We do not use derivative financial instruments for speculative purposes. We do not engage in exchange rate hedging or hold or issue foreign exchange contracts for trading purposes. Currently, we do not expect the impact of

fluctuations in the relative fair value of other currencies to be material in 2014.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The information required by this Item 8 is incorporated by reference to our Consolidated Financial Statements and the Report of Independent Registered Public Accounting Firm beginning at page F-1 of this report.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

As of December 31, 2013, we carried out an evaluation, with the participation of our Chief Executive Officer and Chief Financial Officer, of the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act). Based upon that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this report in recording, processing, summarizing and reporting, on a timely basis, information required to be disclosed in reports that we file or submit under the Exchange Act and our disclosure controls and procedures were also effective to ensure that information we disclose in the reports we file or submit under the Exchange Act is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, to allow timely decisions regarding required disclosure.

Internal Control Over Financial Reporting

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934. Our internal control over financial reporting is a process designed under the supervision of our Chief Executive Officer and Chief Financial Officer to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our financial statements for external purposes in accordance with United States generally accepted accounting principles. As of December 31, 2013, management, with the participation of the Chief Executive Officer and Chief Financial Officer, assessed the effectiveness of our internal control over financial reporting based on the criteria for effective internal control over financial reporting established in "Internal Control—Integrated Framework," issued by the Committee of Sponsoring Organizations of the Treadway Commission (1992 framework). Based on the assessment, management determined that we maintained effective internal control over financial reporting as of December 31, 2013.

Changes in Internal Control over Financial Reporting

There have not been any changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the fourth quarter of our fiscal year ended December 31, 2013, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Attestation Report of Independent Registered Public Accounting Firm

The independent registered public accounting firm that audited the consolidated financial statements that are included in this Annual Report on Form 10-K has issued an audit report on the effectiveness of our internal control over financial reporting as of December 31, 2013. The report appears below.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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

We have audited Inovio Pharmaceuticals, Inc.'s internal control over financial reporting as of December 31, 2013, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (1992 framework) (the COSO criteria). Inovio 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, Inovio Pharmaceuticals, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2013, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Inovio Pharmaceuticals, Inc. as of December 31, 2013 and 2012, and the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2013 of Inovio Pharmaceuticals, Inc. and our report dated March 17, 2014 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

San Diego, California
March 17, 2014

57

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item 10 is hereby incorporated by reference from our definitive proxy statement, to be filed pursuant to Regulation 14A within 120 days after the end of our 2013 fiscal year.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item 11 is hereby incorporated by reference from our definitive proxy statement, to be filed pursuant to Regulation 14A within 120 days after the end of our 2013 fiscal year.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this Item 12 is hereby incorporated by reference from our definitive proxy statement, to be filed pursuant to Regulation 14A within 120 days after the end of our 2013 fiscal year.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

Director independence and other information required by this Item 13 is hereby incorporated by reference from our definitive proxy statement, to be filed pursuant to Regulation 14A within 120 days after the end of our 2013 fiscal year.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this Item 14 is hereby incorporated by reference from our definitive proxy statement, to be filed pursuant to Regulation 14A within 120 days after the end of our 2013 fiscal year.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

1. Financial Statements

Consolidated financial statements required to be filed hereunder are indexed on Page F-1 hereof.

2. Financial Statement Schedules

Schedules not listed herein have been omitted because the information required to be set forth therein is not applicable or is included in the Financial Statements or notes thereto.

3. Exhibits

The following exhibits are filed as part of this annual report on Form 10-K:

Exhibit Number	Description of Document
3.1(a)	Certificate of Incorporation with all amendments (incorporated by reference to Exhibit 3.1 of the registrant's Form 10-Q quarterly report for the quarter ended June 30, 2013, filed on August 9, 2013).
3.2	Amended and Restated Bylaws of Inovio Pharmaceuticals, Inc. dated August 10, 2011 (incorporated by reference to Exhibit 3.2 to the registrant's Form 8-K current report filed on August 12, 2011).
4.16+	Form of Restricted Stock Award Grants under the 2007 Omnibus Stock Incentive Plan (incorporated by reference to Exhibit 4.3 to the registrant's Registration Statement on Form S-8 filed on May 14, 2007).
4.17+	Form of Incentive and Non-Qualified Stock Option Grants under the 2007 Omnibus Stock Incentive Plan (incorporated by reference to Exhibit 4.4 to the registrant's Registration Statement on Form S-8 filed with on May 14, 2007).
4.18	Form of Common Stock Warrant issued by Inovio Pharmaceuticals, Inc. (incorporated by reference to Exhibit 4.1 to the registrant's Form 8-K current report filed on January 24, 2011).
4.19	Form of Warrant to Purchase Common Stock issued by Inovio Pharmaceuticals, Inc. (incorporated by reference to Exhibit 4.1 to the registrant's Form 8-K current report filed December 1, 2011).
4.20	Form of Warrant to Purchase Common Stock issued by Inovio Pharmaceuticals, Inc. (incorporated by reference to Exhibit 4.1 to the registrant's Form 8-K current report filed March 7, 2013).

Exhibit Number	Description of Document
10.1	Lease Agreement by and between the registrant and 1787 Sentry Park West LLC dated December 10, 2009 (incorporated by reference to Exhibit 10.1 of the registrant's Form 10-K annual report for the year ended December 31, 2009 filed on March 26, 2010).
10.2†	License Agreement dated September 20, 2000 by and between the registrant and the University of South Florida Research Foundation, Inc. (incorporated by reference to Exhibit 10.5 of the registrant's Form 10-Q quarterly report for the quarter ended September 30, 2000 filed on November 9, 2000).
10.3†	Non-Exclusive License and Research Collaboration Agreement dated as of May 21, 2004 by and among the registrant and Merck & Co., Inc. and Genetronics, Inc., a subsidiary of the registrant (incorporated by reference to Exhibit 10.1 to the registrant's Form 10-Q quarterly report for the quarter ended June 30, 2004 filed on August 13, 2004).
10.4	Form of Warrant to Purchase Common Stock (incorporated by reference to Exhibit 4.2 of the registrant's Form 8-K current report filed on August 6, 2007).
10.5+	Employment Agreement dated as of December 27, 2010 between Inovio Pharmaceuticals, Inc. and Peter Kies (incorporated by reference to Exhibit 10.5 to the registrant's Form 10-K report for the year ended December 31, 2010 filed on March 16, 2011).
10.6	Termination of Voting Trust Agreement dated as of November 8, 2013 by and among Inovio Pharmaceuticals, Inc., the stockholders parties thereto, Simon Benito and Dr. Morton Collins (incorporated by reference to Exhibit 10.2 to the registrant's Form 10-Q quarterly report for the quarter ended September 30, 2013, filed on November 11, 2013).
10.7+	Employment Agreement dated December 27, 2010 between Inovio Pharmaceuticals, Inc. and Niranjan Y. Sardesai (incorporated by reference to Exhibit 10.7 to the registrant's Form 10-K report for the year ended December 31, 2011 filed on March 15, 2012).
10.8	Lease dated April 9, 2013 by and between BMR-Wateridge LP and Inovio Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.1 to registrant's quarterly report for the quarter ended March 31, 2013, filed on May 10, 2013).
10.9	Form of Indemnification Agreement for Directors and Officers of Inovio Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.1 to the registrant's Form 10-Q quarterly report for the quarterly period ended June 30, 2009, filed on August 19, 2009).
10.12+	Amended and Restated 2007 Omnibus Incentive Plan, as amended (incorporated by reference to Exhibit 10.12 of the registrant's Form 10-K annual report for the year ended December 31, 2012 filed on March 18, 2013).
10.13†	License Agreement dated June 26, 2000 by and among Baylor College of Medicine, Valentis, Inc. and Applied Veterinary Systems, Inc., as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.14†	

License Agreement dated January 25, 2001 by and between Baylor College of Medicine and Applied Veterinary Systems, Inc. as assigned to VGX Pharmaceuticals, Inc., as amended by First Amendment dated April 17, 2002, Second Amendment dated May 29, 2002, Third amendment dated March 5, 2002, Fourth Amendment dated April 14, 2004 and Fifth Amendment dated February 15, 2007 (incorporated by reference to Exhibit 10.27 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).

Exhibit Number	Description of Document
10.15†	Collaboration, Option and License Agreement dated as of September 9, 2013 by and among F. Hoffman-La Roche Ltd, Hoffman-La Roche Inc. and Inovio Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.1 as filed with registrant's Form 8-K current report filed on September 12, 2013).
10.16†	R&D Alliance Agreement dated December 19, 2005 by and between Ganial Immunotherapeutics, Inc. and VGX Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.31 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.17†	Asset Purchase Agreement dated February 21, 2007 by and among Ronald O. Bergan, Mary Alice Bergan, and VGX Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.32 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.18†	License Agreement dated May 9, 2007 by and between Baylor University and VGX Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.34 as filed with the registrant's registration statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.20†	Non-Exclusive License Agreement dated September 1, 2007 by and between VGX Animal Health, Inc. and VGX Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.36 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.21†	License Agreement dated September 1, 2007 by and between VGX Animal Health, Inc. and VGX Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.37 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.22	Assignment of Contingent Payments Agreement dated October 20, 2007 by and among Ronald O. Bergan, Mary Alice Bergan, VGX Animal Health, Inc., and VGX Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.38 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.23†	R&D Collaboration and License Agreement dated December 18, 2006 by and between VGX International, Inc. and VGX Pharmaceuticals, Inc., as amended by First Amendment dated October 31, 2007 and as amended by Second Amendment dated August 4, 2008 (incorporated by reference to Exhibit 10.39 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.24†	Sales and Marketing Agreement dated February 28, 2008 by and between VGX International and VGX Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.42 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).

Exhibit Number	Description of Document
10.25+	Employment Agreement dated March 31, 2008 by and between J. Joseph Kim, Ph.D. and VGX Pharmaceuticals, Inc., as amended by First Amendment of Employment Agreement dated March 31, 2008 (incorporated by reference to Exhibit 10.43 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.26†	CELLECTRA® Device License Agreement dated April 16, 2008 by and between VGX International and VGX Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.44 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.27	Asset Purchase Agreement dated June 10, 2008 by and among VGXI, Inc. and VGX Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.48 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.29†	Patent License Agreement dated April 27, 2007 by and between The Trustees of the University of Pennsylvania and VGX Pharmaceuticals, Inc., as amended by First Amendment dated June 12, 2008 (incorporated by reference to Exhibit 10.50 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.30+	2001 Equity Compensation Plan for VGX Pharmaceuticals, Inc., as amended (incorporated by reference to Exhibit 10.62 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.31+	2007 Equity Compensation Plan for VGX Animal Health, Inc. (incorporated by reference to Exhibit 10.63 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.32	Memorandum of NIH Research Grant Agreement by and between National Institute of Allergy and Infectious Diseases and VGX Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.66 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.33	Form of Warrant to Purchase Common Stock issued by VGX Pharmaceuticals, Inc. since 2003 (incorporated by reference to Exhibit 10.67 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.34	Form of Warrant Purchase Agreement for Warrants to Purchase Common Stock issued by VGX Pharmaceuticals, Inc. since 2003 (incorporated by reference to Exhibit 10.68 as filed with the registrant's Registration Statement on Form S-4 (File No. 333-156035) on April 27, 2009).
10.35†	License and Collaboration Agreement dated March 24, 2010 between Inovio Pharmaceuticals, inc. and VGX International, Inc. (incorporated by reference to Exhibit 10.2 as filed with the registrant's Form 10-Q quarterly report for the quarter ended March 31, 2010 filed on May 17, 2010).
10.36	Lease Agreement dated as of March 5, 2014 between Brandywine Operating Partnership L.P. and Inovio Pharmaceuticals, Inc. (filed herewith).
10.37	Purchase Agreement dated February 27, 2014 between Inovio Pharmaceuticals, Inc. and Piper Jaffray & Co. and Stifel, Nicolaus & Company, Incorporated, as representative of the several underwriters (incorporated by reference to Exhibit 1.1 as filed with the registrant's Form 8-K current report filed on February 27, 2014).

10.38 Intentionally omitted.

Exhibit Number	Description of Document
10.39+	Employment Agreement dated December 10, 2009 between Inovio Pharmaceuticals, Inc. and Mark L. Bagarazzi (incorporated by reference to Exhibit 10.39 to the registrant's Form 10-K report for the year ended December 31, 2011 filed on March 15, 2012).
10.40+	Collaborative Development and License Agreement dated October 7, 2011 between VGX International, Inc. and Inovio Pharmaceuticals, Inc. (incorporated by reference to Exhibit 10.1 as filed with the registrant's Form 10-Q quarterly report for the quarter ended September 30, 2011 filed on November 7, 2011).
10.41+	First Amendment to Employment Agreement dated as of December 31, 2012 between Inovio Pharmaceuticals, Inc. and J. Joseph Kim, PhD. (incorporated by reference to Exhibit 10.41 of the registrant's Form 10-K annual report for the year ended December 31, 2012 filed on March 18, 2013).
10.42+	First Amendment to Employment Agreement dated as of December 31, 2012 between Inovio Pharmaceuticals, Inc. and Peter Kies (incorporated by reference to Exhibit 10.42 of the registrant's Form 10-K annual report for the year ended December 31, 2012 filed on March 18, 2013).
10.43+	First Amendment to Employment Agreement dated as of December 31, 2012 between Inovio Pharmaceuticals, Inc. and Mark L. Bagarazzi (incorporated by reference to Exhibit 10.43 of the registrant's Form 10-K annual report for the year ended December 31, 2012 filed on March 18, 2013).
10.44+	First Amendment to Employment Agreement dated as of December 31, 2012 between Inovio Pharmaceuticals, Inc. and Niranjan Sardesai (incorporated by reference to Exhibit 10.44 of the registrant's Form 10-K annual report for the year ended December 31, 2012 filed on March 18, 2013).
21.1	Subsidiaries of the registrant.
23.1	Consent of Independent Registered Public Accounting Firm.
24.1	Power of Attorney (included on signature page).
31.1	Certification of the Chief Executive Officer pursuant Securities Exchange Act Rule 13a-14(a).
31.2	Certification of the Chief Financial Officer pursuant Securities Exchange Act Rule 13a-14(a).
32.1	Certification pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema Document.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.

101.PRE XBRL Taxonomy Extension Presentation Linkbase Document.

+ Designates management contract, compensatory plan or arrangement.
† Portions redacted pursuant to confidential treatment applications.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized on March 17, 2014.

Inovio Pharmaceuticals, Inc.

By: /s/ J. JOSEPH KIM
J. Joseph Kim
President, Chief Executive Officer and Director

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints J. Joseph Kim and Peter Kies, and each of them severally, his or her true and lawful attorney-in-fact with power of substitution and resubstitution to sign in his or her name, place and stead, in any and all capacities, to do any and all things and execute any and all instruments that such attorney may deem necessary or advisable under the Securities Exchange Act of 1934 and any rules, regulations and requirements of the United States Securities and Exchange Commission in connection with the Annual Report on Form 10-K and any and all amendments hereto, as fully for all intents and purposes as he or she might or could do in person, and hereby ratifies and confirms all said attorneys-in-fact and agents, each acting alone, and his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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

Signature	Title	Date
/s/ J. JOSEPH KIM J. Joseph Kim	President, Chief Executive Officer and Director (Principal Executive Officer)	March 17, 2014
/s/ AVTAR DHILLON Avtar Dhillon	Chairman of the Board of Directors	March 17, 2014
/s/ PETER KIES Peter Kies	Chief Financial Officer (Principal Accounting Officer and Principal Financial Officer)	March 17, 2014
/s/ SIMON X. BENITO Simon X. Benito	Director	March 17, 2014
/s/ ANGEL CABRERA Angel Cabrera	Director	March 17, 2014
/s/ MORTON COLLINS Morton Collins	Director	March 17, 2014
/s/ ADEL MAHMOUD Adel Mahmoud	Director	March 17, 2014

INOVIO PHARMACEUTICALS, INC.
Index to Consolidated Financial Statements

	Page
Report of Independent Registered Public Accounting Firm	F-2
Consolidated Balance Sheets as of December 31, 2013 and December 31, 2012	F-3
Consolidated Statements of Operations for each of the years ended December 31, 2013, 2012 and 2011	F-4
Consolidated Statements of Comprehensive Loss for each of the years ended December 31, 2013, 2012 and 2011	F-5
Consolidated Statements of Stockholders' Equity for each of the years ended December 31, 2013, 2012 and 2011	F-6
Consolidated Statements of Cash Flows for each of the years ended December 31, 2013, 2012 and 2011	F-7
Notes to Consolidated Financial Statements	F-8

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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

We have audited the accompanying consolidated balance sheets of Inovio Pharmaceuticals, Inc. as of December 31, 2013 and 2012, and the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2013. 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 consolidated financial position of Inovio Pharmaceuticals, Inc. at December 31, 2013 and 2012, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2013, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Inovio Pharmaceuticals, Inc.'s internal control over financial reporting as of December 31, 2013, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (1992 framework) and our report dated March 17, 2014 expressed an unqualified opinion thereon.

/s/ ERNST & YOUNG LLP

San Diego, California
March 17, 2014

Inovio Pharmaceuticals, Inc.
CONSOLIDATED BALANCE SHEETS

	December 31, 2013	2012
ASSETS		
Current assets:		
Cash and cash equivalents	$33,719,796	$5,646,021
Short-term investments	18,905,608	8,034,001
Accounts receivable	3,301,563	830,433
Accounts receivable from affiliated entity	—	36,234
Prepaid expenses and other current assets	637,433	471,328
Prepaid expenses and other current assets from affiliated entity	2,057,350	887,167
Deferred tax asset	61,839	62,728
Total current assets	58,683,589	15,967,912
Restricted cash	100,762	100,410
Fixed assets, net	2,886,545	363,021
Investment in affiliated entity	9,664,587	10,703,332
Intangible assets, net	5,718,778	7,489,315
Goodwill	10,113,371	10,113,371
Common stock warrants	717,500	267,200
Other assets	402,075	134,193
Total assets	$88,287,207	$45,138,754
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable and accrued expenses	$5,444,508	$3,181,574
Accounts payable and accrued expenses due to affiliated entity	522,255	187,275
Accrued clinical trial expenses	1,446,180	1,405,896
Common stock warrants	19,540,583	2,859,899
Deferred revenue	1,624,388	353,391
Deferred revenue from affiliated entity	388,542	388,542
Total current liabilities	28,966,456	8,376,577
Deferred revenue, net of current portion	1,997,333	88,609
Deferred revenue from affiliated entity, net of current portion	1,211,694	1,586,694
Deferred rent	3,013,263	65,076
Deferred tax liabilities	195,778	164,393
Total liabilities	35,384,524	10,281,349
Commitments and contingencies		
Inovio Pharmaceuticals, Inc. stockholders' equity:		
Preferred stock—par value $0.001; Authorized shares: 10,000,000, issued and outstanding shares: 26 at both December 31, 2013 and December 31, 2012	—	—
Common stock—par value $0.001; Authorized shares: 600,000,000 at December 31, 2013 and 300,000,000 at December 31, 2012, issued and outstanding: 210,304,821 at December 31, 2013 and 144,313,005 at December 31, 2012	210,305	144,313
Additional paid-in capital	348,109,661	263,897,116
Accumulated deficit	(295,788,577)	(229,760,129)
Accumulated other comprehensive (loss) income	(76,365)	73,362
Total Inovio Pharmaceuticals, Inc. stockholders' equity	52,455,024	34,354,662
Non-controlling interest	447,659	502,743
Total stockholders' equity	52,902,683	34,857,405
Total liabilities and stockholders' equity	$88,287,207	$45,138,754

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

Inovio Pharmaceuticals, Inc.
CONSOLIDATED STATEMENTS OF OPERATIONS

	For the Year ended December 31,		
	2013	2012	2011
Revenues:			
Revenue under collaborative research and development arrangements	$9,239,547	$82,536	$156,397
Revenue under collaborative research and development arrangements with affiliated entity	425,000	577,467	411,459
Grants and miscellaneous revenue	3,802,799	3,458,649	9,227,401
Total revenues	13,467,346	4,118,652	9,795,257
Operating expenses:			
Research and development	21,368,604	17,984,825	20,032,001
General and administrative	13,643,074	10,778,359	11,988,796
Gain on sale of assets	(2,000,000)	(1,151,000)	(587,000)
Total operating expenses	33,011,678	27,612,184	31,433,797
Loss from operations	(19,544,332)	(23,493,532)	(21,638,540)
Other income (expense):			
Interest and other income, net	132,214	166,113	34,285
Change in fair value of common stock warrants	(45,632,669)	1,982,620	8,690,658
(Loss) Gain on investment in affiliated entity	(1,038,745)	1,631,819	(2,390,498)
Net loss	(66,083,532)	(19,712,980)	(15,304,095)
Net loss attributable to non-controlling interest	55,084	44,025	51,150
Net loss attributable to Inovio Pharmaceuticals, Inc.	$(66,028,448)	$(19,668,955)	$(15,252,945)
Loss per common share—basic and diluted:			
Net loss per share attributable to Inovio Pharmaceuticals, Inc. stockholders	$(0.36)	$(0.14)	$(0.12)
Weighted average number of common shares outstanding—basic and diluted	184,351,090	136,509,247	126,239,336

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

Inovio Pharmaceuticals, Inc.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS

	For the Year ended December 31,		
	2013	2012	2011
Net loss	$(66,083,532)	$(19,712,980)	$(15,304,095)
Other comprehensive income (loss):			
Foreign currency translation adjustments	118	1,984	(3,263)
Unrealized (loss) gain on short-term investments	(149,845)	35,985	35,806
Comprehensive loss	$(66,233,259)	$(19,675,011)	$(15,271,552)
Comprehensive loss attributable to non-controlling interest	55,084	44,025	51,150
Comprehensive loss attributable to Inovio Pharmaceuticals, Inc.	$(66,178,175)	$(19,630,986)	$(15,220,402)

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

Inovio Pharmaceuticals, Inc.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	Preferred stock	Common stock		Additional paid-in capital	Accumulated deficit	Accumulated other comprehensive income (loss)	Non-controlling interest	Total stockholders' equity
	Number of shares	Number of shares	Amount					
Balance at December 31, 2010	26	105,038,192	$105,038	$241,233,334	$(194,838,229)	$2,850	$597,918	$47,100,911
Issuance of common stock for cash, net of financing costs of $41,838	—	1,028,905	1,029	1,350,640	—	—	—	1,351,669
Issuance of common stock and warrants for cash, net of financing costs of $1.3 million	—	21,130,400	21,130	22,936,673	—	—	—	22,957,803
Fair value of common stock warrants issued in connection with equity financing	—	——	—	(11,727,372)	—	—	—	(11,727,372)
Issuance of common stock and warrants for cash, net of financing costs of $314,871	—	7,699,712	7,700	3,677,429	—	—	—	3,685,129
Fair value of common stock warrants issued in connection with equity financing	—	——	—	(1,905,679)	—	—	—	(1,905,679)
Exercise of stock options and warrants for cash	—	71,185	71	15,859	—	—	—	15,930
Stock-based compensation	—	——	—	1,654,823	—	—	—	1,654,823
Net loss attributable to common stockholders	—	——	—	—	(15,252,945)	—	(51,150)	(15,304,095)
	—	——	—	—	—	35,806	—	35,806

Unrealized gain on short-term investments								
Foreign currency translation adjustments	—	——	—	—	—	(3,263)	—	(3,263)
Balance at December 31, 2011	26	—134,968,394	$134,968	$257,235,707	$(210,091,174)	$35,393	$546,768	$47,861,662
Issuance of common stock for cash, net of financing costs of $164,695	—	—9,344,611	9,345	5,315,796	—	—	—	5,325,141
Stock-based compensation	—	——	—	1,345,613	—	—	—	1,345,613
Net loss attributable to common stockholders	—	——	—	—	(19,668,955)	—	(44,025)	(19,712,980)
Unrealized gain on short-term investments	—	——	—	—	—	35,985	—	35,985
Foreign currency translation adjustments	—	——	—	—	—	1,984	—	1,984
Balance at December 31, 2012	26	—144,313,005	$144,313	$263,897,116	$(229,760,129)	$73,362	$502,743	$34,857,405
Issuance of common stock and warrants for cash, net of financing costs of $783,000	—	—27,377,266	27,377	14,247,442	—	—	—	14,274,819
Fair value of common stock warrants issued in connection with equity financing	—	——	—	(5,968,244)	—	—	—	(5,968,244)
Issuance of common stock for cash, net of financing costs of $585,000	—	—15,700,668	15,701	18,909,155	—	—	—	18,924,856
Exercise of stock options and warrants	—	—22,849,755	22,850	19,785,382	—	—	—	19,808,232

for cash								
Cashless exercise of warrants	—	64,127	64	(64)	—	—	—	—
Change in classification of warrants from liability to equity due to exercise	—	——	—	35,370,529	—	—	—	35,370,529
Stock-based compensation	—	——	—	1,868,345	—	—	—	1,868,345
Net loss attributable to common stockholders	—	——	—	—	(66,028,448)	—	(55,084)	(66,083,532)
Unrealized loss on short-term investments	—	——	—	—	—	(149,845)	—	(149,845)
Foreign currency translation adjustments	—	——	—	—	—	118	—	118
Balance at December 31, 2013	26	—210,304,821	$210,305	$348,109,661	$(295,788,577)	$(76,365)	$447,659	$52,902,683

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

Inovio Pharmaceuticals, Inc.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	For the Year ended December 31,		
	2013	2012	2011
Cash flows from operating activities:			
Net loss	$(66,083,532)	$(19,712,980)	$(15,304,095)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation	328,752	173,750	142,197
Amortization of intangible assets	1,770,537	1,821,170	1,869,517
Change in value of common stock warrants	45,632,669	(1,982,620)	(8,690,658)
Stock-based compensation	1,868,345	1,345,613	1,654,823
Interest income accrued on short-term investments	(484)	(1,147)	6,271
Deferred taxes	32,274	22,806	25,673
Deferred rent	410,187	(15,799)	13,763
Transaction costs associated with issuance of warrants	315,970	—	—
Loss on short-term investments	38,950	—	—
Loss on disposal of fixed assets	1,822	—	—
Loss (Gain) on investment in affiliated entity	1,038,745	(1,631,819)	2,390,498
Gain on sale of intangible assets	(2,000,000)	(1,151,000)	(587,000)
Changes in operating assets and liabilities:			
Accounts receivable	(2,471,130)	(362,524)	(435,022)
Accounts receivable from affiliated entity	36,234	2,172	33,743
Prepaid expenses and other current assets	(229,705)	363,584	(472,074)
Prepaid expenses and other current assets from affiliated entity	(1,401,258)	(445,981)	212,250
Restricted cash	(352)	(351)	(100,059)
Other assets	26,793	(14,794)	50,866
Accounts payable and accrued expenses	2,164,045	(790,844)	1,789,376
Accounts payable and accrued expenses due to affiliated entity	334,980	166,931	(1,660,603)
Deferred revenue	3,179,721	282,048	(333,725)
Deferred revenue from affiliated entity	(375,000)	(375,000)	(361,458)
Net cash used in operating activities	(15,381,437)	(22,306,785)	(19,755,717)
Cash flows from investing activities:			
Purchases of investments	(15,399,495)	(9,142,220)	(18,193,614)
Maturities of investments	4,339,577	14,008,771	7,206,000
Purchases of capital assets	(176,925)	(240,986)	(161,187)
Additional investment in affiliated entity	—	—	(101,123)
Proceeds from sale of intangible assets	2,000,000	650,000	350,000
Net cash (used in) provided by investing activities	(9,236,843)	5,275,565	(10,899,924)
Cash flows from financing activities:			
Proceeds from issuance of common stock and warrants, net of issuance costs	32,883,705	5,325,141	27,994,601
Proceeds from stock option and warrant exercises	19,808,232	—	15,930
Net cash provided by financing activities	52,691,937	5,325,141	28,010,531
Effect of exchange rate changes on cash and cash equivalents	118	1,984	(3,263)
Increase (Decrease) in cash and cash equivalents	28,073,775	(11,704,095)	(2,648,373)
Cash and cash equivalents, beginning of period	5,646,021	17,350,116	19,998,489
Cash and cash equivalents, end of period	$33,719,796	$5,646,021	$17,350,116

Supplemental disclosure of non-cash activities

Lease incentive	$2,538,000	$—	$—

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

Inovio Pharmaceuticals, Inc.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
1. The Company
Inovio Pharmaceuticals, Inc. (the “Company” or “Inovio”) is developing vaccines and immune therapies, called synthetic vaccines, focused on cancers and infectious diseases. The Company's DNA-based immune therapies, in combination with its proprietary electroporation delivery devices, are generating immune responses, with therapeutic T-cell responses exceeding other technologies in terms of magnitude, breadth, and response rate. In addition, the Company's novel SynCon® vaccine design has shown the ability to help break the immune system’s tolerance of cancerous cells. Given the recognized role of killer T cells in eliminating cancerous or infected cells from the body, Inovio’s scientists believe that its active immunotherapies may play an important role in helping fight these diseases. Inovio's SynCon® design is also intended to provide universal protection against known as well as new unmatched strains of pathogens such as influenza. Human data to date have shown a favorable safety profile of the Company's DNA vaccines delivered using electroporation. The Company has completed, current or planned clinical programs of its proprietary SynCon® vaccines and immunotherapies for HPV-caused pre-cancers and cancers (therapeutic), influenza (preventive), prostate cancer (therapeutic), breast/lung/pancreatic cancer (therapeutic), hepatitis C virus (HCV) (therapeutic), hepatitis B virus (HBV) (therapeutic), HIV, and malaria (preventive and therapeutic). The Company's partners and collaborators include Roche, University of Pennsylvania, Drexel University, National Microbiology Laboratory of the Public Health Agency of Canada, Program for Appropriate Technology in Health/Malaria Vaccine Initiative (“PATH”/ “MVI”), National Institute of Allergy and Infectious Diseases (“NIAID”), Merck, United States Military HIV Research Program (“USMHRP”), U.S. Army Medical Research Institute of Infectious Diseases (“USAMRIID”), HIV Vaccines Trial Network (“HVTN”) and Department of Homeland Security (“DHS”).

2. Summary of Significant Accounting Policies
Basis of Presentation
Inovio incurred a net loss of $66.0 million for the year ended December 31, 2013. Inovio had working capital of $29.7 million and an accumulated deficit of $295.8 million as of December 31, 2013. The Company’s ability to continue its operations is dependent upon its ability to obtain additional capital in the future and achieve profitable operations. The Company expects to continue to rely on outside sources of financing to meet its capital needs and the Company may never achieve positive cash flow. These consolidated financial statements do not include any adjustments to the specific amounts and classifications of assets and liabilities, which might be necessary should Inovio be unable to continue in business. Inovio’s consolidated financial statements as of and for the year ended December 31, 2013 have been prepared on a going concern basis, which contemplates the realization of assets and the settlement of liabilities and commitments in the normal course of business for the foreseeable future. The Company has evaluated subsequent events after the balance sheet date through the date it issued these financial statements.

Reclassification
Certain reclassifications have been made to the prior year consolidated financial statements to conform to the current year presentation.
Consolidation
These consolidated financial statements include the accounts of Inovio Pharmaceuticals, Inc. and its subsidiaries. In conjunction with the acquisition in June 2009 of VGX Pharmaceuticals (the “Merger”), the Company acquired an 88% interest in VGX Animal Health and certain shares in VGX International, Inc. (“VGX Int'l”) (a publicly-traded company in South Korea). The Company consolidates Genetronics, Inc., VGX Pharmaceuticals and its subsidiary VGX Animal Health and records a non-controlling interest for the 9% of VGX Animal Health it does not own as of December 31, 2013 and 2012. The Company's investment in VGX Int'l, which is recorded as investment in affiliated entity within the consolidated balance sheets is accounted for at fair value on a recurring basis, with changes in fair value recorded on the consolidated statements of operations within gain (loss) on investment in affiliated entity. All intercompany accounts and transactions have been eliminated upon consolidation.
Variable Interest Entities

In June 2009, the FASB issued authoritative guidance that requires companies to perform a qualitative analysis to determine whether a variable interest in another entity represents a controlling financial interest in a variable interest entity. A controlling financial interest in a variable interest entity is characterized by having both the power to direct the most significant activities of the entity and the obligation to absorb losses or the right to receive benefits of the entity. This guidance also requires on-going reassessments of variable interests based on changes in facts and circumstances. This guidance became

effective for fiscal years beginning after November 15, 2009. The Company adopted the provisions of the guidance in the first quarter of 2010 and determined that none of the entities with which the Company currently conducts business and collaborations are variable interest entities, except VGXI (a wholly-owned subsidiary of VGX Int'l). The Company determined that they are not the primary beneficiary and therefore are not required to consolidate VGXI. The Company continues to assess its variable interests and has determined that no significant changes have occurred as of December 31, 2013.

Use of Estimates

The preparation of consolidated financial statements in accordance with United States generally accepted accounting principles requires the Company to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. Inovio bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. On an ongoing basis, the Company reviews its estimates to ensure that these estimates appropriately reflect changes in the business or as new information becomes available.

Concentration of Credit Risk

Financial instruments, which potentially subject the Company to concentrations of credit risk, consist primarily of cash and cash equivalents, and short-term investments. The Company limits its exposure to credit loss by placing its cash and investments with high credit quality financial institutions. Additionally, the Company has established guidelines regarding diversification of its investments and their maturities which are designed to maintain principal and maximize liquidity. The Company had contracts with customers which represented more than 10% of total revenues for all of the years presented as discussed in Note 6.

Fair value of Financial Instruments

The Company’s financial instruments consist principally of cash equivalents, short-term investments, investment in affiliated entity and common stock warrants. The carrying amounts of cash equivalents approximate the related fair values due to the short-term maturities of these instruments. Investments consist of available-for-sale securities that are reported at fair value with the related unrealized gains and losses included in accumulated other comprehensive loss, a component of consolidated stockholders’ equity. The Company’s investment in affiliated entity is accounted for at fair value on a recurring basis, with changes in fair value recorded on the consolidated statements of operations within gain(loss) from investment in affiliated entity. The estimated fair value of the common stock warrants is determined by using the Black-Scholes pricing model as of December 31, 2013, as discussed in Note 5.

Cash and Cash Equivalents

Cash equivalents are considered by the Company to be highly liquid investments purchased with original maturities of three months or less from the date of purchase. Cash and cash equivalents include certain money market accounts at December 31, 2013 and 2012.

Restricted Cash

Restricted cash consists of a certificate of deposit with a term of 90 days which has been pledged as collateral with a financial institution. The certificate of deposit has been classified as held-to-maturity and is accounted for at amortized cost which approximates fair value. The certificate of deposit and accrued interest will automatically renew at each maturity date until termination of the agreement.

Investments

The Company defines investments as income yielding securities that can be readily converted into cash. Investments include mutual funds and municipal bonds at December 31, 2013 and certificates of deposit, mutual funds, and municipal bonds at December 31, 2012.

Accounts Receivable

Accounts receivable are recorded at invoiced amounts and do not bear interest. Inovio performs ongoing credit evaluations of our customers’ financial condition. Credit is extended to customers as deemed necessary and generally does not require collateral. Management believes that the risk of loss is significantly reduced due to the quality and financial position of our customers. No allowance for doubtful accounts was deemed necessary at December 31, 2013 and 2012.

Fixed Assets

Property and equipment are stated at cost and depreciated using the straight-line method over the estimated useful life of the assets, generally three to five years. Leasehold improvements are amortized over the shorter of the remaining term of the related leases or the estimated economic useful lives of the improvements. Repairs and maintenance are expensed as incurred.

Long-Lived Assets

All long-lived assets are reviewed for impairment in value when changes in circumstances dictate, based upon undiscounted future operating cash flows, and appropriate losses are recognized and reflected in current earnings, to the extent the carrying amount of an asset exceeds its estimated fair value determined by the use of appraisals, discounted cash flow analyses or comparable fair values of similar assets. The Company has not recognized any losses on long-lived assets through December 31, 2013.

Valuation of Goodwill and Intangible Assets

Goodwill represents the excess of acquisition cost over the fair value of the net assets of acquired businesses. Intangible assets are amortized over their estimated useful lives ranging from 5 to 18 years. Acquired intangible assets are continuously being developed for the future economic viability contemplated at the time of acquisition. The Company is concurrently conducting pre-clinical, Phase I, and Phase II trials using the acquired intangibles, and has entered into certain significant licensing agreements for use of these acquired intangibles.

Historically the Company has recorded patents at cost and amortized these costs using the straight-line method over the expected useful lives of the patents or 17 years, whichever is less. Patent cost consists of the consideration paid for patents and related legal costs. Effective June 1, 2009, in connection with the acquisition of VGX, all new patent costs are being expensed as incurred. Patent cost capitalized as of June 1, 2009 will continue to be amortized over the expected life of the patent. License costs are recorded based on the fair value of consideration paid and amortized using the straight-line method over the shorter of the expected useful life of the underlying patents or the term of the related license agreement to the extent the license has an alternative future use. As of December 31, 2013 and 2012, the Company's intangible assets resulting from the acquisition of VGX and Inovio AS, and additional intangibles including previously capitalized patent costs and license costs, net of accumulated amortization, totaled $5.7 million and $7.5 million, respectively.

The determination of the value of such intangible assets requires management to make estimates and assumptions that affect the Company's consolidated financial statements. The Company assesses potential impairments to intangible assets when there is evidence that events or changes in circumstances indicate that the carrying amount of an asset may not be recovered. The Company's judgments regarding the existence of impairment indicators and future cash flows related to intangible assets are based on operational performance of our acquired businesses, market conditions and other factors. If impairment is indicated, the Company will reduce the carrying value of the intangible asset to fair value. While current and historical operating and cash flow losses are potential indicators of impairment, the Company believes the future cash flows to be received from its intangible assets will exceed the intangible assets' carrying value, and accordingly, the Company has not recognized any impairment losses through December 31, 2013.

Goodwill is not amortized but instead is measured for impairment annually, or when events indicate that impairment exists. The Company's accounting policy with respect to reviewing goodwill for impairment is a two step process. The first step of the impairment test compares the fair value of our reporting unit with its carrying value including allocated goodwill. If the carrying value of the Company's reporting unit exceeds its fair value, then the second step of the impairment test is performed to measure the impairment loss, if any. The Company tests goodwill for impairment at the entity level, which is considered our reporting unit. The Company's estimate of fair value is determined using both the Discounted Cash Flow method of the Income Approach and the Guideline Public Company method of the Market Approach. The Discounted Cash Flow method estimates future cash flows of our business for a certain discrete period and then discounts them to their present value. The Guideline Public Company method computes value indicators ("multiples") from the operating data of the selected publicly traded guideline companies. After these multiples were evaluated, appropriate value indicators were selected and applied to the operating statistics of the reporting unit to arrive at indications of value. Specifically, the Company relied upon the application of Total Invested Capital based valuation multiples for each guideline company. In applying the Income and Market Approaches,

premiums and discounts were determined and applied to estimate the fair values of the reporting unit. To arrive at the indicated value of equity under each approach, the Company then assigned a relative weighting to the resulting values from each approach to determine whether the carrying value of the reporting unit exceeds its fair value, thus requiring step two of the impairment test.

The Company conducts the impairment test annually on November 30th for each fiscal year for which goodwill is evaluated for impairment. The Company is also aware of the requirement to evaluate goodwill for impairment at other times

should circumstances arise. To date, the Company has concluded that the fair value of the reporting unit exceeded the carrying value and therefore, step two of the impairment test has never been performed.

Although there are inherent uncertainties in this assessment process, the estimates and assumptions the Company is using are consistent with its internal planning. If these estimates or their related assumptions change in the future, the Company may be required to record an impairment charge on all or a portion of our goodwill and intangible assets. Furthermore, the Company cannot predict the occurrence of future impairment triggering events nor the impact such events might have on its reported asset values. Future events could cause the Company to conclude that impairment indicators exist and that goodwill or other intangible assets associated with its acquired businesses are impaired. Any resulting impairment loss could have an adverse impact on the Company's results of operations. See Note 8 for further discussion of the Company's goodwill and intangible assets.

Income Taxes

The Company recognizes deferred tax assets and liabilities for temporary differences between the financial reporting basis and the tax basis of the Company's assets and liabilities along with net operating loss and tax credit carry forwards. The Company records a valuation allowance against its deferred tax assets to reduce the net carrying value to an amount that it believes is more likely than not to be realized. When the Company establishes or reduces the valuation allowance against its deferred tax assets, its provision for income taxes will increase or decrease, respectively, in the period such determination is made.

Valuation allowances against the Company's deferred tax assets were $61.1 million and $52.2 million at December 31, 2013 and 2012, respectively. Changes in the valuation allowances, when they are recognized in the provision for income taxes, are included as a component of the estimated annual effective tax rate.

Revenue Recognition

Grant revenue

Inovio receives non-refundable grants under available government programs. Government grants towards current expenditures are recorded as revenue when there is reasonable assurance that we have complied with all conditions necessary to receive the grants, collectability is reasonably assured, and as the expenditures are incurred.

License fee and milestone revenue

Inovio has adopted a strategy of co-developing or licensing its gene delivery technology for specific genes or specific medical indications. Accordingly, the Company has entered into collaborative research and development agreements and has received funding for pre-clinical research and clinical trials. Prior to the adoption of the Financial Accounting Standards Board's ("FASB") Accounting Standards Update ("ASU") No. 2009-13, Revenue Recognition (Topic 605): Multiple-Deliverable Revenue Arrangements, the Company analyzed its multiple element arrangements to determine whether the identified deliverables could be accounted for individually as separate units of accounting. The delivered item(s) were considered a separate unit of accounting if all of the following criteria were met: (1)the delivered item(s) has value to the customer on a standalone basis; (2)there is objective and reliable evidence of the fair value of the undelivered item(s); and (3) if the arrangement includes a general right of return relative to the delivered item, delivery or performance of the undelivered item(s) is considered probable and substantially in our control. If these criteria were not met, the deliverable was combined with other deliverables in the arrangement and accounted for as a combined unit of accounting.

For new collaborative agreements or material modifications of existing collaborative agreements entered into after December 31, 2010, Inovio follows the provisions of ASU No. 2009-13. In order to account for the multiple-element arrangements, the Company identifies the deliverables included within the agreement and evaluates which deliverables represent separable units of accounting. Analyzing the arrangement to identify deliverables requires the use of judgment, and each deliverable may be an obligation to deliver services, a right or license to use an asset, or another performance obligation. A delivered item is considered a separate unit of accounting when the delivered item has value to the collaborator on a standalone basis based on the consideration of the relevant facts and circumstances for each arrangement.

Arrangement consideration is allocated at the inception of the agreement to all identified units of accounting based on their relative selling price. The relative selling price for each deliverable is determined using vendor specific objective evidence ("VSOE"), of selling price or third-party evidence of selling price if VSOE does not exist. If neither VSOE nor

third-party evidence of selling price exists, we use our best estimate of the selling price for the deliverable. The amount of allocable arrangement consideration is limited to amounts that are fixed or determinable. The consideration received is allocated among the separate units of accounting, and the applicable revenue recognition criteria are applied to each of the separate units.

Changes in the allocation of the sales price between delivered and undelivered elements can impact revenue recognition but do not change the total revenue recognized under any agreement.

Upfront license fee payments are recognized upon delivery of the license if facts and circumstances dictate that the license has standalone value from the undelivered items, the relative selling price allocation of the license is equal to or exceeds the upfront license fee, persuasive evidence of an arrangement exists, our price to the collaborator is fixed or determinable, and collectability is reasonably assured. Upfront license fee payments are deferred if facts and circumstances dictate that the license does not have standalone value. The determination of the length of the period over which to defer revenue is subject to judgment and estimation and can have an impact on the amount of revenue recognized in a given period.

Prior to the adoption of ASU No. 2010-17, Revenue Recognition (Topic 605): Milestone Method of Revenue Recognition ("Milestone Method"), Inovio recognized non-refundable milestone payments upon the achievement of specified milestones upon which we had earned the milestone payment, provided the milestone payment was substantive in nature and the achievement of the milestone was not reasonably assured at the inception of the agreement. The Company deferred payments for milestone events that were reasonably assured and recognized them ratably over the minimum remaining period of our performance obligations. Payments for milestones that were not reasonably assured were treated as the culmination of a separate earnings process and were recognized as revenue when the milestones were achieved.

Effective January 1, 2011, the Company adopted on a prospective basis the Milestone Method of ASU No. 2010-17. Under the Milestone Method, the Company will recognize consideration that is contingent upon the achievement of a milestone in its entirety as revenue in the period in which the milestone is achieved only if the milestone is substantive in its entirety. A milestone is considered substantive when it meets all of the following criteria:

1. The consideration is commensurate with either the entity's performance to achieve the milestone or the enhancement of the value of the delivered item(s) as a result of a specific outcome resulting from the entity's performance to achieve the milestone,
2. The consideration relates solely to past performance, and
3. The consideration is reasonable relative to all of the deliverables and payment terms within the arrangement.

A milestone is defined as an event (i) that can only be achieved based in whole or in part on either the entity's performance or on the occurrence of a specific outcome resulting from the entity's performance, (ii) for which there is substantive uncertainty at the date the arrangement is entered into that the event will be achieved and (iii) that would result in additional payments being due to the Company.

Research and Development Expenses

Since Inovio's inception, virtually all of the Company's activities have consisted of research and development efforts related to developing electroporation technologies and DNA vaccines. Research and development expenses consist of expenses incurred in performing research and development activities including salaries and benefits, facilities and other overhead expenses, clinical trials, contract services and other outside expenses. Research and development expenses are charged to operations as they are incurred.

Net Loss Per Share

Basic net loss per share is computed by dividing the net loss for the year by the weighted average number of common shares outstanding during the year. Diluted loss per share is calculated in accordance with the treasury stock method and reflects the potential dilution that would occur if securities or other contracts to issue common stock were exercised or converted to common stock. Since the effect of the assumed exercise of common stock options, warrants and other convertible securities was anti-dilutive for all periods presented, basic and diluted loss per share are the same.

The following table summarizes potential common shares that were excluded from diluted net loss per share calculation because of their anti-dilutive effect:

	Year Ended December 31,		
	2013	2012	2011
Options to purchase common stock	16,538,118	16,257,444	14,302,803
Warrants to purchase common stock	14,059,260	21,593,844	21,743,844

Convertible preferred stock	38,233	38,233	38,233
Total	30,635,611	37,889,521	36,084,880

Leases

Leases are classified as either capital or operating leases. Leases which transfer substantially all of the benefits and risks incidental to the ownership of assets are accounted for as if there was an acquisition of an asset and incurrence of an obligation at the inception of the lease. All other leases are accounted for as operating leases. Inovio's Blue Bell, PA headquarters and San Diego, CA facility leases, which have escalating payments, are both expensed on a straight-line basis over the term of the lease. The allowance provided by the lessor for leasehold improvements are considered tenant incentives and are amortized on a straight-line basis over the term of the lease. These leases represent the primary expense and commitment as indicated in Note 11 "Commitments" below. Other leases exist for office machinery, such as copiers, wherein lease expense is recorded as incurred.

Stock-Based Compensation

The Company recognizes compensation expense for all share-based awards made to employees, directors, and non-employees. Inovio estimates the fair value of stock options granted using the Black-Scholes option pricing model. The Black-Scholes option pricing model was developed for use in estimating the fair value of traded options, which have no vesting restrictions and are fully transferable. In addition, option valuation models require the input of highly subjective assumptions, including the expected stock price volatility and expected option life. Inovio measures the fair value of employee and director awards at the date of grant. For non-employee awards, Inovio measures the fair value at each reporting period. All option grants are amortized over the requisite service period of the awards on a straight-line basis. Expected volatility is based on historical volatility. The expected life of options granted is based on historical expected life. The risk-free interest rate is based on the United States Treasury yield in effect at the time of grant with maturities appropriate for the expected term of the stock option. The forfeiture rate is based on historical data and Inovio records stock-based compensation expense only for those awards that are expected to vest. The dividend yield is based on the fact that no dividends have been paid on common stock historically, and none are currently expected to be paid.

Weighted average assumptions used in the Black-Scholes model for employees and directors are presented below:

	Year Ended December 31,		
	2013	2012	2011
Risk-free interest rate	0.41%	0.36%	1.23%
Expected volatility	111%	131%	134%
Expected life in years	4	4	4
Dividend yield	—	—	—
Forfeiture rate	8%	8%	11%

Assumptions used in the Black-Scholes model for non-employees are presented below:

	Year Ended December 31,		
	2013	2012	2011
Risk-free interest rate	0.84% – 1.52%	0.67% – 0.83%	0.91% – 3.47%
Expected volatility	102%-113%	103%-117%	96%-119%
Expected life in years	7-10	7-10	6-10
Dividend yield	—	—	—

Recent Accounting Pronouncements

The below recent pronouncement may have a significant effect on the Company's financial statements. Recent pronouncements that are not anticipated to have an impact on or are unrelated to the Company's financial condition, results of operations, or related disclosures are not discussed.

Accounting Standards Update ("ASU"), No. 2013-02-In February 2013, the Financial Accounting Standards Board ("FASB") issued an ASU which amended the disclosure requirements regarding the reporting of amounts reclassified out of accumulated other comprehensive income. The amendment does not change the current requirement for reporting net income or other comprehensive income, but requires additional disclosures about significant amounts

reclassified out of accumulated

other comprehensive income including the effect of the reclassification on the related net income line items. The Company has adopted ASU 2013-02 prospectively effective January 1, 2013 and the adoption is not expected to have a significant impact on the Company's financial statements as the requirements are disclosure only in nature.

3. Collaborative Agreements

In September 2013, the Company entered into a Collaborative, License, and Option Agreement (the "Agreement") with F. Hoffmann-La Roche Ltd and Hoffmann-La Roche Inc. ("Roche"). Under the Agreement, the Company and Roche will co-develop multi-antigen DNA immunotherapies targeting prostate cancer and hepatitis B (the "Products"). Roche acquired an exclusive worldwide license for the Company's DNA-based vaccines INO-5150 (targeting prostate cancer) and INO-1800 (targeting hepatitis B) as well as the use of the Company's CELLECTRA® electroporation technology for delivery of the vaccines. Roche also obtained an option to license additional vaccines in connection with a collaborative research program in prostate cancer.

Under the terms of the Agreement, Roche made an upfront payment of $10 million and has agreed to make additional development, regulatory and commercial event based payments of up to $412.5 million, of which $3.0 million related to INO-1800 represent milestones under the milestone method of accounting. Additional event based payments could also be made to the Company if Roche pursues other indications with INO-5150 or INO-1800. The Company has assessed event based payments under the revised authoritative guidance for research and development milestones and determined that other than the $3.0 million related to INO-1800 discussed above, none of the other event based payments represent milestones under the milestone method of accounting. No event based payments or milestones were achieved during the periods presented.

The Company is entitled to receive up to double-digit tiered royalties on product sales. Unless terminated earlier in accordance with its terms, the Agreement continues in effect until the date when no royalty or other payment obligations under the Agreement are or will become due, i.e., a royalty term ending on the later of the date that is (a) ten years after the date of the first commercial sale of the product that is subject to the Agreement or (b) the expiration of the last to expire of the patent rights that are subject to the Agreement. Under the terms of the Agreement the Company also agreed to perform certain research and development and manufacturing and supply services, at Roche's expense.

The Company identified the deliverables at the inception of the agreement. The Company has determined that the license to INO-5150 and INO-1800, the Option Right to license additional vaccines, research and development services, manufacturing and drug supply, and participation in the Joint Steering Committee individually represent separate units of accounting because each deliverable has standalone value. The Company considered the provisions of the multiple-element arrangement guidance in determining whether the deliverables outlined above have standalone value and thus should be treated as separate units of accounting. The Company determined that the licenses and Option Right to license additional vaccines have standalone value and represent separate units of accounting because the rights conveyed permit Roche to perform all efforts necessary to complete development, commercialize and begin selling the product upon regulatory approval. In addition, Roche has the appropriate development, regulatory and commercial expertise with products similar to the product licensed under the agreement and has the ability to engage third parties to manufacture the product allowing Roche to realize the value of the license without receiving any of the remaining deliverables. Roche can also sublicense its license rights to third parties. Also, the Company determined that the research services, committee participation and manufacturing services each represent individual units of accounting as Roche could perform such services and/or could acquire these on a separate basis. The best estimated selling prices for these units of accounting were determined based on market conditions, the terms of comparable collaborative agreements for similar technology in the pharmaceutical and biotechnology industry, the Company's pricing practices and pricing objectives and the nature of the research and development services to be provided. While market data was considered throughout the valuation process, ultimately, the selling prices of the licenses and Option Right were determined utilizing two forms of the relief from royalty method under the Income Approach and the cost-to-recreate method under the Cost Approach. The arrangement consideration was allocated to the deliverables based on the relative selling price method.

The amount allocable to the delivered unit or units of accounting is limited to the amount that is considered fixed and determinable and is not contingent upon the delivery of additional items or meeting other specified performance

conditions. Based on the results of the Company's analysis, the $10 million up-front payment was allocated as follows: $5.0 million and $3.4 million to the license to INO-5150 and INO-1800, respectively, $1.5 million to the Option Right and $155,000 to the Joint Steering Committee obligation. The amounts allocated to the licenses for INO-5150 and INO-1800 were recognized as revenue under collaborative research and development arrangements during the year ended December 31, 2013 as these were determined to be earned upon the granting of the license and delivery of the related knowledge and data. Due to the Company's continuing involvement obligations, the remaining amounts will be classified as deferred revenue as of December 31, 2013. The Company will recognize revenues associated with research and development services and manufacturing and drug supply as revenues under collaborative arrangements as the related services are performed and according to the relative selling price method of the allocable arrangement consideration. During the year ended December 31, 2013, the Company recognized

revenues of $9.2 million from Roche, of which $9.1 million was allocated to the licenses and $84,000 to research and development services and manufacturing, respectively. As of December 31, 2013, the Company has a deferred revenue balance of $3.4 million related to the Roche Agreement.

The Company has entered into various Collaborative Development and License Agreements with VGX Int'l as discussed in Note 15. Under these Agreements, the Company may receive future event based payments upon approval of an investigational new drug application (IND) and/or initiation of clinical trials and future net sales. These future event based payments do not meet the criteria of a milestone in accordance with the authoritative guidance as they are solely based on the performance of the collaborators.

4. Investments

Investments consist of mutual funds and municipal bonds at December 31, 2013 and of certificates of deposit, mutual funds, and municipal bonds at December 31, 2012. The Company classifies all investments as available-for-sale, as the sale of such investments may be required prior to maturity to implement management strategies. These investments are carried at fair value, with the unrealized gains and losses reported as a component of accumulated other comprehensive loss in the consolidated statements of stockholders' equity until realized. Realized gains and losses from the sale of investments, if any, are determined on a specific identification basis. Realized gains and losses and declines in value judged to be other-than-temporary, if any, on available-for-sale investments are included as a component of interest and other income, net, in the consolidated statements of operations. During the year ended December 31, 2013, net realized loss on investments of $39,000 was recorded. No such impairment charges were recorded during the years ended December 31, 2012 or 2011. Interest on investments classified as available-for-sale are included in interest and other income, net, in the consolidated statements of operations.

The following is a summary of short-tem investments as of December 31, 2013 and 2012:

		As of December 31, 2013			
	Contractual Maturity (in years)	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Market Value
Mutual funds	---	$18,178,518	$—	$(78,614)	$ 18,099,904
Municipal bonds	Less than 1	805,144	560	—	805,704
Total investments		$18,983,662	$ 560	$(78,614)	$ 18,905,608
		As of December 31, 2012			
	Contractual Maturity (in years)	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Market Value
Mutual funds	---	$7,500,063	$ 83,868	$—	$ 7,583,931
Certificates of deposit	Less than 1	250,000	—	—	250,000
Municipal bonds	Less than 1	201,470	—	(1,400)	200,070
Total investments		$7,951,533	$ 83,868	$(1,400)	$ 8,034,001

5. Fair Value Measurements

The guidance regarding fair value measurements establishes a three-tier fair value hierarchy which prioritizes the inputs used in measuring fair value. These tiers include: Level 1, defined as observable inputs such as quoted prices in active markets; Level 2, defined as inputs other than quoted prices in active markets that are either directly or indirectly observable; and Level 3, defined as unobservable inputs in which little or no market data exists, therefore requiring an entity to develop its own assumptions.

Assets and liabilities are classified based on the lowest level of input that is significant to the fair value measurements. The Company reviews the fair value hierarchy classification on a quarterly basis. Changes in the ability to observe valuation inputs may result in a reclassification of levels for certain securities within the fair value hierarchy. The Company did not have any transfer of assets and liabilities between Level 1, Level 2 and Level 3 of the fair value hierarchy during the years ended December 31, 2013 and 2012.

The following table presents the Company's assets and liabilities that are measured at fair value on a recurring basis as of December 31, 2013:

	Fair Value Measurements at December 31, 2013			
	Total	Using Quoted Prices in Active Markets for Identical Assets (Level 1)	Using Significant Other Unobservable Inputs (Level 2)	Using Significant Unobservable Inputs (Level 3)
Assets:				
Money market funds	$26,852,560	$26,852,560		$—
Mutual funds	18,099,904	—	18,099,904	—
Municipal bonds	805,704	—	805,704	—
Investment in affiliated entity	9,664,587	9,664,587	—	—
Common stock warrants	717,500	—	—	717,500
Total Assets	$56,140,255	$36,517,147	$18,905,608	$717,500
Liabilities:				
Common stock warrants	$19,540,583	$—	$—	$19,540,583
Total Liabilities	$19,540,583	$—	$—	$19,540,583

The following table presents the Company's assets and liabilities that are measured at fair value on a recurring basis as of December 31, 2012:

	Fair Value Measurements at December 31, 2012			
	Total	Using Quoted Prices in Active Markets for Identical Assets (Level 1)	Using Significant Other Unobservable Inputs (Level 2)	Using Significant Unobservable Inputs (Level 3)
Assets:				
Money market funds	$1,686,406	$1,686,406	$—	$—
Mutual funds	7,583,931	—	7,583,931	—
Certificates of deposit	250,000	—	250,000	—
Municipal bonds	200,070	—	200,070	—
Investment in affiliated entity	10,703,332	10,703,332	—	—
Common stock warrants	267,200	—	—	267,200
Total Assets	$20,690,939	$12,389,738	$8,034,001	$267,200
Liabilities:				
Common stock warrants	$2,859,899	$—	$—	$2,859,899
Total Liabilities	$2,859,899	$—	$—	$2,859,899

Level 1 assets include money market funds held by the Company that are valued at quoted market prices, as well as the Company's investment in VGX Int'l, for which the fair value is based on the market value of 8,220,775 common shares on December 31, 2013 and 2012, listed on the Korean Stock Exchange. The Company accounts for its investment at fair value on a recurring basis.

Level 2 assets at December 31, 2013 include mutual funds held by the Company that are initially valued at the transaction price and subsequently valued, at the end of each reporting period, typically utilizing market observable

data. The Company obtains the fair value of its Level 2 assets from a professional pricing service, which may use quoted market prices for identical or comparable instruments, or inputs other than quoted prices that are observable either directly or indirectly. The professional pricing service gathers quoted market prices and observable inputs for all of mutual funds from a variety of industry data providers. The valuation techniques used to measure the fair value of the Company's Level 2 financial instruments were derived from non-binding market consensus prices that are corroborated by observable market data, quoted market prices for similar instruments, or pricing models such as discounted cash flow techniques. The Company validates the quoted market prices provided by the primary pricing service by comparing their assessment of the fair values of the Company's investment portfolio balance against the fair values of the Company's investment portfolio balance obtained from an independent source.

Level 3 assets at December 31, 2013 include two warrants received by the Company to purchase shares of common stock of OncoSec Medical Incorporated ("OncoSec"), in connection with the first and second amendments to the Asset Purchase Agreement between the Company and OncoSec signed in September 2011 and March 2012, respectively. The first warrant to purchase 1,000,000 shares of common stock of OncoSec has a contractual life of five years with an exercise price of $1.20 per share. The second warrant to purchase 3,000,000 shares of common stock of OncoSec has a contractual life of five years with an exercise price of $1.00 per share.

As of December 31, 2013 the Company recorded a long-term asset of approximately $718,000 associated with the warrants received to purchase common stock of OncoSec. The Company valued the warrants received in March 2012 as of the issuance date using the Black Scholes pricing model and recorded a $501,000 gain on sale of assets within the consolidated statement of operations. Inputs used in the pricing model include estimates of OncoSec stock price volatility, expected warrant life and risk-free interest rate. The Company develops its estimates based on publicly available historical data and knowledge of OncoSec. The Company reassesses the fair value of the warrants at each reporting date. The assumptions used to estimate the fair values of the OncoSec common stock warrants at December 31, 2013 are presented below:

Risk-free interest rate	0.78%
Expected volatility	85%
Expected life in years	2.75-3.25
Dividend yield	—

As a result of these calculations, the Company recorded an increase (decrease) in fair value of the two warrants of $450,000 and ($334,000) for the years ended December 31, 2013 and 2012, respectively. The change in fair value is reflected in the Company's consolidated statement of operations as a component of change in fair value of common stock warrants.

The following table presents a summary of changes in fair value of the Company's total Level 3 financial assets for the years ended December 31, 2013 and 2012:

	Year Ended December 31, 2013	Year Ended December 31, 2012
Balance at beginning of year	$267,200	$100,000
Common stock warrant recorded at fair value upon acquisition	—	501,000
Increase (Decrease) in fair value included in change in fair value of common stock warrants	450,300	(333,800)
Balance at end of year	$717,500	$267,200

Level 3 liabilities held as of December 31, 2013 consist of common stock warrant liabilities associated with warrants to purchase the Company's common stock issued in July 2009, January 2011 and March 2013. Level 3 liabilities held as of December 31, 2012 consist of common stock warrant liabilities associated with warrants to purchase the Company's common stock issued in July 2009, January 2011 and December 2011. During the year ended December 31, 2013, warrants to purchase 21,164,997 shares of common stock were exercised.

As of December 31, 2013 the Company recorded a $19.5 million common stock warrant liability. The Company reassesses the fair value of the common stock warrants at each reporting date utilizing a Black-Scholes pricing model. Inputs used in the pricing model include estimates of stock price volatility, expected warrant life and risk-free interest rate. The Company develops its estimates based on historical data. The range of assumptions used to estimate the fair values of common stock warrants at December 31, 2013 are presented below:

Risk-free interest rate	0.13%-1.75%
Expected volatility	90%-112%

Expected life in years	.50-4.70
Dividend yield	—

Changes in these assumptions as well as in the Company's stock price on the valuation date can have a significant impact on the fair value of the common stock warrant liability. As a result of these calculations, the Company recorded an increase (decrease) in fair value of $46.1 million, $(2.3) million and $(8.8) million for the years ended December 31, 2013, 2012 and 2011, respectively. The significant change in fair value was primarily due to the change in the Company's stock price during the period. The change in fair value is reflected in the Company's consolidated statement of operations as a component of change in fair value of common stock warrants. Warrants that were exercised during the period were revalued on the day prior to exercise and then reclassified into stockholders' equity upon exercise.

The following table presents the changes in fair value of the Company’s total Level 3 financial liabilities for the years ended December 31, 2013 and 2012:

	Year Ended December 31, 2013	Year Ended December 31, 2012
Balance at beginning of year	$2,859,899	$5,176,319
Record fair value of warrants issued in March 2013 financing	5,968,244	—
Increase (Decrease) in fair value included in change in fair value of common stock warrants	46,082,969	(2,316,420)
Change in classification from liability to stockholders' equity due to warrant exercises	(35,370,529)	—
Balance at end of year	$19,540,583	$2,859,899

6. Major Customers and Concentration of Credit Risk

Customer	2013	% of Total Revenue	2012	% of Total Revenue	2011	% of Total Revenue
Roche	$9,181,759	68 %	$—	— %	$—	— %
NIAID	2,090,939	16	2,831,115	69 %	7,801,976	80 %
VGX Int'l (affiliated entity)	425,000	3	577,467	14	411,459	4
All other	1,769,648	13	710,070	17	1,581,822	16
Total Revenue	$13,467,346	100 %	$4,118,652	100 %	$9,795,257	100 %

During the years ended December 31, 2013, 2012 and 2011, the Company recognized revenue from various license fees and milestone payments, collaborative research and development agreements, grants and government contracts.

As of December 31, 2013, $2.6 million or 79% and $382,000 or 12% of accounts receivable was attributed to Roche and the NIAID, respectively. As of December 31, 2012, $612,000 or 71% and $95,000 or 11% of accounts receivable was attributed to the NIAID and University of Pennsylvania, respectively.

There is minimal credit risk with these customers based upon collection history, their size and financial condition. Accordingly, the Company does not consider it necessary to record a reserve for uncollectible accounts receivable.

7. Fixed Assets

Fixed assets at December 31, 2013 and 2012 consist of the following:

	Cost	Accumulated Depreciation and Amortization	Net Book Value
As of December 31, 2013			
Machinery, equipment and office furniture	$2,381,033	$(1,807,706)	$573,327
Leasehold improvements	2,420,940	(107,722)	2,313,218
	$4,801,973	$(1,915,428)	$2,886,545
As of December 31, 2012			
Machinery, equipment and office furniture	$2,014,588	$(1,731,660)	$282,928
Leasehold improvements	466,135	(386,042)	80,093
	$2,480,723	$(2,117,702)	$363,021

Depreciation expense for the years ended December 31, 2013, 2012 and 2011 was $329,000, $174,000 and $142,000, respectively. The Company determined that the carrying value of these long-lived assets was not impaired for the periods presented.

8. Goodwill and Intangible Assets

The following sets forth the goodwill and intangible assets by major asset class:

		December 31, 2013			December 31, 2012		
	Useful Life (Yrs)	Gross	Accumulated Amortization	Net Book Value	Gross	Accumulated Amortization	Net Book Value
Non-Amortizing:							
Goodwill(a)		$10,113,371	$—	$10,113,371	$10,113,371	$—	$10,113,371
Amortizing:							
Patents	8 – 17	5,802,528	(5,128,227)	674,301	5,802,528	(4,852,673)	949,855
Licenses	8 – 17	1,323,761	(1,075,617)	248,144	1,323,761	(1,046,870)	276,891
CELLECTRA®(b)	5 – 11	8,106,270	(5,543,786)	2,562,484	8,106,270	(4,334,234)	3,772,036
GHRH(b)	11	335,314	(145,215)	190,099	335,314	(113,531)	221,783
Other(c)	18	4,050,000	(2,006,250)	2,043,750	4,050,000	(1,781,250)	2,268,750
Total intangible assets		19,617,873	(13,899,095)	5,718,778	19,617,873	(12,128,558)	7,489,315
Total goodwill and intangible assets		$29,731,244	$(13,899,095)	$15,832,149	$29,731,244	$(12,128,558)	$17,602,686

(a) Goodwill was recorded from the Inovio AS acquisition in January 2005 and from the acquisition of VGX in June 2009 for $3.9 million and $6.2 million, respectively.

(b) CELLECTRA® and GHRH are developed technologies which were recorded from the acquisition of VGX.

(c) Other intangible assets represent the fair value of acquired intellectual property from the Inovio AS acquisition.

Aggregate amortization expense on intangible assets was $1.8 million, $1.8 million and $1.9 million for the years ended December 31, 2013, 2012 and 2011, respectively. Amortization expense related to intangible assets at December 31, 2013 for each of the next five fiscal years and beyond is expected to be incurred as follows:

2014	$943,000
2015	870,000
2016	816,000
2017	775,000
2018	773,000
Thereafter	1,542,000
	$5,719,000

In accordance with the guidance regarding goodwill, the Company has completed its annual impairment test and fair value analysis for goodwill held throughout the year. The Company conducts the impairment test annually on November 30th. There was no impairment or impairment indicator present and no loss was recorded during the years ended December 31, 2013, 2012 and 2011, respectively.

9. Accounts Payable and Accrued Expenses

Accounts payable and accrued expenses at December 31, 2013 and 2012 consist of the following:

	As of December 31, 2013	As of December 31, 2012
Trade accounts payable	$1,865,723	$852,573
Accrued compensation	2,586,806	1,560,704
Other accrued expenses	991,979	768,297
	$5,444,508	$3,181,574

10. Stockholders' Equity

Preferred Stock

			Outstanding as of December 31,	
	Authorized	Issued	2013	2012
Series A Preferred Stock, par $0.001	1,000	817	—	—
Series B Preferred Stock, par $0.001	1,000	750	—	—
Series C Preferred Stock, par $0.001	1,091	1,091	26	26
Series D Preferred Stock, par $0.001	1,966,292	1,966,292	—	—

There have been no changes in the number of outstanding shares of our preferred stock for the years ended December 31, 2013, 2012 or 2011.

The shares of the Company's outstanding Series C Preferred Stock have the following pertinent rights and privileges, as set forth in the Company's Amended and Restated Certificate of Incorporation and its Certificates of Designations, Rights and Preferences related to the various series of preferred stock.

Rights on Liquidation

In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company (a "liquidation event"), before any distribution of assets of the Company shall be made to or set apart for the holders of common stock, the holders of Series C Preferred Stock, pari passu, are entitled to receive payment of such assets of the Company in an amount equal to $10,000 per share of such series of preferred stock, plus any accumulated and unpaid dividends thereon (whether or not earned or declared).

If the assets of the Company available for distribution to stockholders exceed the aggregate amount of the liquidation preferences payable with respect to all shares of each series of preferred stock then outstanding, then, after the payment of such preferences is made or irrevocably set aside, the holders of the Company's common stock are entitled

to

F-20

receive a pro rata portion of such assets based on the aggregate number of shares of common stock held by each such holder. The holders of the Company's outstanding preferred stock shall participate in such a distribution on a pro-rata basis, computed based on the number of shares of common stock which would be held by such preferred holders if immediately prior to the liquidation event all of the outstanding shares of the preferred stock had been converted into shares of common stock at the then current conversion value applicable to each series.

A Change of Control of the Company (as defined in the Certificates of Designations, Rights and Preferences) is not a liquidation event triggering the preferences described above, and is instead addressed by separate terms in the Series C Certificates of Designations, Rights, and Preferences.

Although the liquidation preferences are in excess of the par value of $0.001 per share of the Company's preferred stock, these preferences are equal to or less than the stated value of such shares based on their original purchase price.

Voting Rights

The holders of all series of the Company's preferred stock outstanding have full voting rights and powers equal to the voting rights and powers of holders of the Company's common stock and are entitled to notice of any stockholders' meeting in accordance with the Company's Bylaws. Holders of the Company's preferred stock are entitled to vote on any matter upon which holders of the Company's common stock have the right to vote, including, without limitation, the right to vote for the election of directors together with the holders of common stock as one class.

Conversion Rights

The Series C Preferred Stock each provide the holder of such shares an optional conversion right and provide a mandatory conversion upon certain triggering events.

Right to Convert The holder of any share or shares of Series C Preferred Stock has the right at any time, at such holder's option, to convert all or any lesser portion of such holder's shares of the Preferred Stock into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing (i) the aggregate Liquidation Preference applicable to the particular series of preferred shares, plus accrued and unpaid dividends thereon by (ii) the applicable Conversion Value (as defined in the relevant series' Certificate of Designations, Rights and Preferences) then in effect for such series of preferred shares. The Company is not obligated to issue any fractional shares or scrip representing fractional shares upon such conversion and instead shall pay the holder an amount in cash equal to such fraction multiplied by the current market price per share of the Company's common stock.

Mandatory Conversion The Company has the option upon thirty (30) days prior written notice, to convert all of the outstanding shares of the Series C Preferred Stock into such number of fully paid and non-assessable shares of common stock as is determined by dividing (i) the aggregate Liquidation Preference of the shares of the relevant series of preferred stock to be converted plus accrued and unpaid dividends thereon by (ii) the applicable Conversion Value (as defined in the relevant series' Certificate of Designations, Rights and Preferences) then in effect, if at any time after twelve months following the Original Issue Date of each such series of preferred stock all of the following triggering events occur:

(i) The registration statement covering all of the shares of common stock into which the particular series of preferred stock is convertible is effective (or all of the shares of common stock into which the preferred stock is convertible may be sold without restriction pursuant to Rule 144 under the Securities Act of 1933, as amended);

(ii) the Daily Market Price (as defined in the applicable Certificates of Designations, Rights and Preferences) of the common stock crosses a specified pricing threshold for twenty of the thirty consecutive trading days prior to the date the Company provides notice of conversion to the holders; and

(iii) the average daily trading volume (subject to adjustment for stock dividends, subdivisions and combinations) of the common stock for at least twenty of the thirty consecutive trading days prior to the date the Company provides notice of conversion to the holders exceeds 25,000 shares.

As of December 31, 2013, our outstanding shares of the Series C Preferred Stock were convertible into 38,233 shares of our common stock at a conversion price of $6.80 per share, and the applicable Daily Market Price of the common stock for triggering mandatory conversion equaled $18.00 per share.

Common Stock

In May 2013, the Company filed a Certificate of Amendment to the Certificate of Incorporation with the Delaware Secretary of State. The Certificate of Amendment increased the number of shares of common stock the Company has the authority to issue from 300,000,000 shares to 600,000,000 shares.

In March 2013, the Company completed an underwritten offering of 27,377,266 shares of common stock and

warrants to purchase an aggregate of up to 13,688,633 shares of common stock. The shares and warrants were sold in units at a price of $0.55 per unit, with each unit consisting of one share of common stock and a warrant to purchase 0.50 share of common stock at an exercise price of $0.7936 per share. The warrants have a term of five and one-half years. The net proceeds, after deducting the underwriters' discounts and other offering expenses, were approximately $14.0 million. The Company valued the registered warrants issued in connection with the March 2013 financing as of the issuance date using the Black Scholes pricing model and recorded a current liability on the consolidated balance sheet of $6.0 million. The warrants were subsequently revalued and the Company recorded the increase in fair value of $25.0 million to change in fair value of common stock warrants on the consolidated statement of operations for the year ended December 31, 2013. As of December 31, 2013, 10,665,908 of these warrants had been exercised. Transaction costs associated with the issuance of the warrants were allocated by using the relative fair value approach. These transaction costs of $316,000 were immediately expensed and included as part of general and administrative expense in the Company's consolidated statement of operations for the year ended December 31, 2013.

In June 2012, the Company entered into a sales agreement (the “Sales Agreement”) with an outside placement agent (the “Placement Agent”) to sell shares of its common stock with aggregate gross proceeds of up to $25.0 million from time to time, through an “at-the-market” equity offering program under which the Placement Agent will act as sales agent. Under the Sales Agreement, the Company will set the parameters for the sale of shares, including the number of shares to be issued, the time period during which sales are requested to be made, limitation on the number of shares that may be sold in any one trading day and any minimum price below which sales may not be made. The Sales Agreement provides that the Placement Agent will be entitled to compensation for its services in an amount equal to 3.0% of the gross proceeds from the sales of shares sold through the Placement Agent under the Sales Agreement. The Company has no obligation to sell any shares under the Sales Agreement, and may at any time suspend solicitation and offers under the Sales Agreement.

During the year ended December 31, 2013, the Company sold a total of 15,700,668 shares of common stock under the Sales Agreement. The sales were made at a weighted average price of $1.24 per share with net proceeds to the Company of $18.9 million. As of December 31, 2013, the Company has exhausted all available proceeds under this Sales Agreement.

During the year ended December 31, 2012, the Company sold a total of 9,344,611 shares of common stock under the Sales Agreement. The sales were made at a weighted average price of $0.59 per share with net proceeds to the Company of $5.3 million.

In December 2011, the Company completed an underwritten public offering relating to the sale and issuance of 7,699,712 units to certain institutional investors, consisting of 7,699,712 shares of common stock and warrants to purchase an aggregate of up to 5,774,784 additional shares of common stock. These units, which were purchased for $0.5195 per unit, include the partial exercise of the underwriter's overallotment option of 962,465 additional units at the public offering price. The units consist of one share of common stock and 0.75 of a warrant to purchase one share of common stock. The warrants have a term of five years and an exercise price of $0.65 per share. The Company may call the warrants if the closing bid price of the common stock has been at least $1.30 over 20 trading days and certain other conditions are met. The Company received net proceeds from the transaction of approximately $3.7 million, after deducting the underwriter's discounts and other offering expenses payable by the Company. The Company valued the registered warrants issued in connection with the December 2011 financing as of the issuance date using the Black Scholes pricing model and recorded a current liability on the consolidated balance sheet. The warrants were subsequently revalued and the Company recorded the change in fair value of $(4.9) million and $115,000 to change in fair value of common stock warrants on the consolidated statement of operations for the years ended December 31, 2013 and 2012, respectively. As of December 31, 2013, all of these warrants had been exercised.

In January 2011, the Company entered into investor purchase agreements with investors relating to the issuance and sale of (a) 21,130,400 shares of common stock, and (b) warrants to purchase a total of 10,565,200 shares of common stock with an exercise price of $1.40 per share, for an aggregate purchase price of approximately $24.3 million. The shares of common stock and warrants were sold in units, consisting of one share of common stock and a warrant to purchase 0.50 of a share of common stock, at a purchase price of $1.15 per unit. The Warrants have a five-year term from the date of issuance and are first exercisable commencing on the 180th day after the date of issuance. The Company may call the warrants if the closing bid price of the common stock has been at least $2.80 over 20 trading

days and certain other conditions are met. The Company received net proceeds from the transaction of approximately $23.0 million, after deducting the placement agent's fee and offering expenses payable by the Company. The Company valued the registered warrants issued in connection with the January 2011 financing as of the issuance date using the Black Scholes pricing model and recorded a current liability on the consolidated balance sheet. The warrants were subsequently revalued and the Company recorded the change in fair value of $(15.8) million and $2.4 million to change in fair value of common stock

warrants on the consolidated statement of operations for the years ended December 31, 2013 and 2012, respectively. As of December 31, 2013, 3,870,200 of these warrants had been exercised.

The Company accounts for registered common stock warrants issued in July 2009, January 2011 and March 2013 under the authoritative guidance on accounting for derivative financial instruments indexed to, and potentially settled in, a company's own stock, on the understanding that in compliance with applicable securities laws, the registered warrants require the issuance of registered securities upon exercise and do not sufficiently preclude an implied right to net cash settlement. The Company classifies registered warrants on the consolidated balance sheet as a current liability which is revalued at each balance sheet date subsequent to the initial issuance. Determining the appropriate fair-value model and calculating the fair value of registered warrants requires considerable judgment, including estimating stock price volatility and expected warrant life. The Company develops its estimates based on historical data. A small change in the estimates used may have a relatively large change in the estimated valuation. The Company uses the Black-Scholes pricing model to value the registered warrants. Changes in the fair market value of the warrants are reflected in the consolidated statement of operations as "Change in fair value of common stock warrants."

Warrants

The following table summarizes the warrants outstanding as of December 31, 2013 and 2012:

			As of December 31, 2013		As of December 31, 2012	
Issued in Connection With:	Exercise Price	Expiration Date	Number of Warrants	Common Stock Warrant Liability	Number of Warrants	Common Stock Warrant Liability
March 2013 financing	$ 0.79	September 12, 2018	3,022,725	$ 7,859,085	—	$ —
December 2011 financing	$ 0.65	December 6, 2016	—	—	5,774,784	2,078,921
January 2011 financing	$ 1.40	January 27, 2016	6,695,000	11,381,498	10,565,200	779,711
July 2009 financing	$ 3.38	July 1, 2014	333,333	300,000	333,333	1,267
Warrants assumed in June 2009 Merger	$1.02-$1.28	August 1, 2015-April 28, 2016	4,008,202	—	4,920,527	—
Total			14,059,260	$ 19,540,583	21,593,844	$ 2,859,899

During the year ended December 31, 2013, warrants to purchase 10,665,908 shares of the Company's common stock which were issued in connection with the March 2013 financing were exercised, with proceeds to the Company of $8.5 million.

During the year ended December 31, 2013, warrants to purchase 5,774,784 shares of the Company's common stock which were issued in connection with the December 2011 financing were exercised, with proceeds to the Company of $3.8 million.

During the year ended December 31, 2013, warrants to purchase 3,870,200 shares of the Company's common stock which were issued in connection with the January 2011 financing were exercised, with proceeds to the Company of $5.4 million.

During the year ended December 31, 2013, warrants expired to purchase 58,220 shares of the Company's common stock, which were assumed in the June 2009 Merger.

In August 2012, warrants expired to purchase 150,000 shares of our common stock issued in connection with consulting
services received in August 2007.

Stock Options

The Company has one active stock-based incentive plan, the Amended and Restated 2007 Omnibus Incentive Plan (the "Incentive Plan"), pursuant to which the Company has granted stock options and restricted stock awards to executive officers, directors and employees. The Incentive Plan was adopted on March 31, 2007, approved by the stockholders on May 4, 2007, approved by the stockholders as amended on May 2, 2008, and approved by the stockholders as amended and restated on August 25, 2009 and May 14, 2010. On May 14, 2010 the stockholders approved to increase the aggregate number of shares available for grant under the Incentive Plan by 2,000,000 and to provide that the aggregate number of

shares available for grant under the Incentive Plan will be increased on January 1 of each year beginning in 2011 by a number of shares equal to the lesser of (1) 2,055,331 or (2) such lesser number of shares as may be determined by the Board. At December 31, 2013, the Incentive Plan reserves 11,915,993 shares of common stock for issuance as or upon exercise of incentive awards granted and to be granted at future dates. At December 31, 2013, the Company had 1,197,306 shares of common stock available for future grant under the Incentive Plan, and 240,000 shares of vested restricted stock and options to purchase 9,163,063 shares of common stock outstanding under the Incentive Plan. The awards granted and available for future grant under the Incentive Plan generally vest over three years and have a maximum contractual term of ten years. The Incentive Plan terminates by its terms on March 31, 2017.

The Incentive Plan supersedes all of the Company's previous stock option plans, which include the Amended 2000 Stock Option Plan and the VGX Equity Compensation Plan, under which the Company had options to purchase 1,091,750 and 6,283,305 shares of common stock outstanding at December 31, 2013, respectively. The terms and conditions of the options outstanding under these plans remain unchanged.

Total compensation cost for our stock plans recognized in the consolidated statement of operations for the years ended December 31, 2013, 2012 and 2011 was $1.2 million, $1.2 million, and $1.6 million, respectively, of which $550,000, $555,000 and $472,000 was included in research and development expenses and $605,000, $638,000 and $1.1 million was included in general and administrative expenses, respectively.

At December 31, 2013 and 2012, there was $956,000 and $944,000 of total unrecognized compensation cost, respectively, related to unvested stock options, which is expected to be recognized over a weighted-average period of 1.8 years and 1.9 years, respectively.

The fair value of options granted to non-employees at the measurement dates were estimated using the Black-Scholes pricing model. Total stock-based compensation for options granted to non-employees for the years ended December 31, 2013, 2012 and 2011 was $714,000, $153,000 and $33,000, respectively. As of December 31, 2013, 4,794,496 non-employee options remained outstanding.

The following table summarizes total stock options outstanding at December 31, 2013:

	Options Outstanding			Options Exercisable	
Exercise Price	Options Outstanding	Weighted-Average Remaining Contractual Life (in Years)	Weighted Average Exercise Price	Options Exercisable	Weighted-Average Exercise Price
$0.00 – $1.00	5,888,591	8.2	$0.56	2,561,431	$ 0.57
$1.01 – $2.00	9,363,064	4.1	$1.32	8,903,626	$ 1.32
$2.01 – $4.00	1,047,713	3.1	$3.02	986,307	$ 3.06
$4.01 – $6.00	188,750	0.3	$4.86	188,750	$ 4.86
$6.01 – $6.12	50,000	0.2	$6.12	50,000	$ 6.12
	16,538,118	5.5	$1.21	12,690,114	$ 1.38

At December 31, 2013, the aggregate intrinsic value of options outstanding was $28.7 million, the aggregate intrinsic value of options exercisable was $20.1 million, and the weighted average remaining contractual term of options exercisable was 4.7 years.

At December 31, 2013, 3,540,163 stock options are expected to vest.

Stock option activity under our stock option plans was as follows:

	Number of Shares	Weighted-Average Exercise Price
Balance, December 31, 2010	12,649,968	$ 1.49
Granted	2,068,750	1.10
Exercised	(68,309)	0.23
Cancelled	(347,606)	2.25
Balance, December 31, 2011	14,302,803	1.42
Granted	2,733,750	0.58
Exercised	—	—
Cancelled	(779,109)	1.55
Balance, December 31, 2012	16,257,444	1.28
Granted	2,913,625	0.61
Exercised	(1,925,214)	0.81
Cancelled	(707,737)	1.30
Balance, December 31, 2013	16,538,118	$ 1.21

The weighted average exercise price was $1.33 for the 496,012 options which expired during the year ended December 31, 2013, $1.83 for the 207,498 options which expired during the year ended December 31, 2012 and $2.08 for the 100,000 options which expired during the year ended December 31, 2011.

The weighted average grant date fair value per share was $0.44, $0.47 and $0.90 for options granted during the years ended December 31, 2013, 2012 and 2011, respectively.

The Company received $1.6 million, $0 and $16,000 in proceeds from the exercise of stock options during the years ended December 31, 2013, 2012 and 2011, respectively. The aggregate intrinsic value of options exercised was $2.5 million, $0 and $65,000 during the years ended December 31, 2013, 2012 and 2011, respectively.

11. Commitments

The Company’s corporate headquarters is located at 1787 Sentry Parkway West in Blue Bell, Pennsylvania. The lease was amended in February 2012 and runs through June 30, 2017 for a total of approximately 8,761 square feet. At the end of the lease term, the Company has the option of renewing this lease for an additional three-year lease term at an annual rate equal to the fair market rental value of the property, as defined in the lease agreement.

The Company's corporate office in San Diego is located at 10480 Wateridge Circle in San Diego, California. This lease was signed in April 2013 and the building was occupied in early December 2013. The term of the Lease runs through December 1, 2023 and is for a total of approximately 26,500 square feet. The base rent adjusts periodically throughout the ten year term of the Lease, with monthly payments ranging from zero to $82,945. In addition, the Company will pay the landlord its share of operating expenses and a property management fee and has paid a security deposit of $64,000.

The lease required the lessor to complete and pay for certain improvements to the building before the commencement of the lease in December 2013. The lessor completed these improvements worth approximately $2.3 million, which have been recorded as a leasehold improvement within fixed assets on the consolidated balance sheet, offset by a corresponding amount recorded in deferred rent.

Rent expense was $906,000, $444,000, and $430,000 for the years ended December 31, 2013, 2012 and 2011, respectively. Future minimum lease payments under non-cancelable operating leases as of December 31, 2013 are as follows:

2014	$233,000
2015	677,000
2016	817,000
2017	739,000
2018	668,000
Thereafter	4,620,000
Total	$7,754,000

In the normal course of business, the Company is a party to a variety of agreements pursuant to which they may be obligated to indemnify the other party. It is not possible to predict the maximum potential amount of future payments under these types of agreements due to the conditional nature of our obligations and the unique facts and circumstances involved in each particular agreement. Historically, payments made by us under these types of agreements have not had a material effect on our business, consolidated results of operations or financial condition.

12. Investment in Affiliated Entity

The Company's investment in an affiliated entity represents the Company's 14.7% and 16.1% ownership interest in the Korean based company, VGX Int'l, as of December 31, 2013 and 2012, respectively. This investment is measured at fair value on a recurring basis. The fair market value of the Company's interest in VGX Int'l was determined using the closing price of VGX Int'l's shares of common stock as listed on the Korean Stock Exchange as of December 31, 2013 and 2012.

13. Income Taxes

In accordance with the guidance pursuant to accounting for income taxes, a deferred tax asset or liability is determined based on the difference between the financial statement and tax basis of assets and liabilities as measured by the enacted tax rates which will be in effect when these differences reverse. The Company provides a valuation allowance against net deferred tax assets unless, based upon the available evidence, it is more likely than not that the deferred tax asset will be realized.

The components of the provision for income taxes are presented in the following table:

	Year Ended December 31,		
	2013	2012	2011
Current:			
Federal	$—	$—	$—
State	(1,000)	7,000	1,000
	$(1,000)	$7,000	$1,000
Deferred:			
Federal	$15,000	$20,000	$19,000
State	17,000	3,000	7,000
	$32,000	$23,000	$26,000
	$31,000	$30,000	$27,000

The reconciliation of income taxes attributable to operations computed at the statutory tax rates to income tax expense (recovery), using a 35% statutory tax rate, is:

	Year Ended December 31,		
	2013	2012	2011
Income (benefit) taxes at statutory rates	$(23,118,000)	$(6,894,000)	$(5,352,000)
State income tax, net of federal benefit	(1,651,000)	(1,234,000)	(1,378,000)
Change in valuation allowance	8,819,000	7,415,000	7,679,000
IRC Section 382/383 limitation	675,000	18,000	918,000
Fair value warrant	16,129,000	(811,000)	(3,090,000)
Stock compensation	279,000	603,000	(147,000)
Change in state tax rate	(623,000)	438,000	125,000
Other	(479,000)	495,000	1,272,000
	$31,000	$30,000	$27,000

The income tax expense (recovery) has been recorded as a general and administrative expense, as its effect is immaterial.

Significant components of the Company's deferred tax assets and liabilities as of December 31, 2013 and 2012 are shown below:

	As of December 31,	
	2013	2012
Deferred tax assets:		
Capitalized research expense	$2,782,000	$3,191,000
Net operating loss carryforwards	48,846,000	43,233,000
Research and development and other tax credits	1,877,000	1,134,000
Other	8,641,000	6,569,000
	62,146,000	54,127,000
Valuation allowance	(61,061,000)	(52,185,000)
Total deferred tax assets	1,085,000	1,942,000
Deferred tax liabilities:		
Acquired intangibles	(1,096,000)	(1,532,000)
Investment in affiliated entity	(123,000)	(511,000)
Net deferred tax liabilities	$(134,000)	$(101,000)

We have established a valuation allowance for all deferred tax assets including those for net operating loss ("NOL") and tax credit carryforwards. Such a valuation allowance is recorded when it is more likely than not that the deferred tax assets will not be realized. The Company maintains a deferred tax liability related to goodwill that is not netted against the deferred tax assets, as reversal of the taxable temporary difference cannot serve as a source of income for realization of the deferred tax assets, because the deferred tax liability will not reverse until the asset is sold or written down due to impairment.

As of December 31, 2013, the Company had federal, California and Pennsylvania tax net operating loss carry forwards of approximately $122.4 million, $38.9 million and $75.6 million, respectively, net of the net operating losses that will expire due to IRC Section 382 limitations. The federal net operating loss carry forwards will begin to expire in 2018 unless previously utilized. The California net operating loss carry forwards will begin to expire in 2014 and the Pennsylvania net operating loss carry forwards will begin to expire in 2021.

In addition, we had federal and state research tax credit carryforwards of approximately $2.0 million net of IRS Section 382 limitation and $2.1 million, respectively. The federal tax credit carryforwards will begin to expire in 2018. The California research tax credits do not expire.

Utilization of the NOL and tax credit carryforwards will be subject to a substantial annual limitation under Section 382 of the Internal Revenue Code of 1986, and similar state provisions due to ownership change limitations that have occurred previously or that could occur in the future. These ownership changes will limit the amount of NOL and tax credit carryforwards and other deferred tax assets that can be utilized to offset future taxable income and

tax, respectively. In general, an ownership change, as defined by Section 382, results from transactions increasing ownership of certain stock holders or public groups in the stock of the corporation by more than 50 percentage points over a three-year period.

The Company is in the process of updating the Section 382/383 study for the Company and VGX, both of which experienced ownership changes under Section 382 as a result of the Merger on June 1, 2009. Based upon the preliminary results of the study, it is estimated that approximately $28.3 million of tax benefits related to NOL and tax credit carryforwards will expire unused. Accordingly, the related NOL and R&D credit carryforwards have been removed from deferred tax assets accompanied by a corresponding reduction of the valuation allowance. Upon completion of the study, deferred tax assets relating to NOL and R&D credit carryforwards for the Company and VGX may need to be adjusted with a corresponding adjustment to the valuation allowance. Due to the existence of the valuation allowance, limitations created by current and future ownership changes, if any, related to our operations in the United States will not impact our effective tax rate. Any additional ownership changes, may further limit the ability to use the net operating losses and credits carryovers.

The following table summarizes the activity related to our unrecognized tax benefits:

	Year ended December 31,		
	2013	2012	2011
Balance at beginning of the year	$1,896,000	$1,829,000	$629,000
Increases related to current year tax positions	305,000	72,000	158,000
Increases (Decreases) related to prior year tax positions	215,000	(5,000)	1,042,000
Balance at end of the year	$2,416,000	$1,896,000	$1,829,000

The amount of unrecognized tax benefit that, if recognized and realized would affect the effective tax rate is $2.0 million as of December 31, 2013. The Company has not recorded any interest and penalties on the unrecognized tax positions as the Company has continued to generate net operating losses after accounting for the unrecognized tax benefits. The Company does not anticipate that the total amount of unrecognized tax benefits will significantly increase or decrease within twelve months of the reporting date.

The Company and its subsidiaries are subject to United States federal income tax as well as income tax in multiple state jurisdictions. With few exceptions, the Company is no longer subject to United States federal income tax examinations for years before 2010; state and local income tax examinations before 2009; and foreign income tax examinations before 2010. However, to the extent allowed by law, the tax authorities may have the right to examine prior periods where net operating losses were generated and carried forward, and make adjustments up to the amount of the net operating loss carryforward amount. The Company is not currently under Internal Revenue Service (“IRS”), state or local tax examination.

On September 13, 2013, the U.S. Treasury Department released final income tax regulations on the deduction and capitalization of expenditures related to tangible property. These final regulations apply to tax years beginning on or after January 1, 2014, and may be adopted in earlier years. The Company does not intend to early adopt the tax treatment of expenditures to improve tangible property and the capitalization of inherently facilitative costs to acquire tangible property as of January 1, 2013. The tangible property regulations will require the Company to make additional tax accounting method changes as of January 1, 2014; however, management does not anticipate the impact of these changes to be material to the Company’s consolidated financial position, its results of operations or its footnote disclosures.

14. 401(k) Plan

In 1995, the Company adopted a 401(k) Profit Sharing Plan (the “Plan”) covering substantially all of its employees. The defined contribution plan allows the employees to contribute a percentage of their compensation each year. The Company currently matches 50% of its employees’ contributions, up to 6% of their annual compensation. The Company’s contributions are recorded as expense in the accompanying consolidated statements of operations and totaled $196,000, $170,000 and $134,000 for the years ended December 31, 2013, 2012 and 2011, respectively.

15. Related Party Transactions

VGX International Inc.

The Company conducts transactions with its affiliated entity, VGX Int’l.

In July 2011 the Company purchased an additional 145,000 shares of VGX Int'l at a price of approximately $0.71 per share in connection with a common stock rights offering. The rights offering, however, reduced the Company's ownership percentage, which is approximately 14.7% as of December 31, 2013.

On October 7, 2011, the Company entered into a Collaborative Development and License Agreement (the "Agreement") with VGX Int'l. Under the Agreement, the Company and VGX Int'l will co-develop the Company's SynCon® therapeutic vaccines for hepatitis B and C infections (the "Products"). Under the terms of the Agreement, VGX Int'l will receive marketing

rights for the Products in Asia, excluding Japan, and in return will fully fund IND-enabling and initial Phase I and II clinical studies with respect to the Products. The Company will receive from VGX Int'l payments based on the achievement of clinical milestones and royalties based on sales of the Products in the licensed territories, retaining all commercial rights to the Products in all other territories.

On March 24, 2010, the Company entered into a Collaboration and License Agreement (the "VGX Int'l Agreement") with VGX Int'l. Under the VGX Int'l Agreement, the Company granted VGX Int'l an exclusive license to Inovio's SynCon® universal influenza vaccine delivered with electroporation to be developed in certain countries in Asia (the "Product"). As consideration for the license granted to VGX Int'l, the Company received payment of $3.0 million, and will receive research support, annual license maintenance fees and royalties on net Product sales. The Company recorded the $3.0 million as deferred revenue from affiliated entity, and will recognize it as revenue over the eight year expected period of the Company's performance obligation. In addition, contingent upon achievement of clinical and regulatory milestones, the Company will receive development payments over the term of the VGX Int'l Agreement. The VGX Int'l Agreement also provides Inovio with exclusive rights to supply devices for clinical and commercial purposes (including single use components) to VGX Int'l for use in the Product. The term of the VGX Int'l Agreement commenced upon execution and will extend on a country by country basis until the last to expire of all Royalty Periods for the territory (as such term is defined in the VGX Int'l Agreement) for any Product in that country, unless the VGX Int'l Agreement is terminated earlier in accordance with its provisions as a result of breach, by mutual agreement, or by VGX Int'l's right to terminate without cause upon prior written notice.

For the years ended December 31, 2013, 2012 and 2011, the Company recognized revenue from VGX Int'l of $425,000, $577,000 and $411,000, respectively, which consisted of licensing, collaborative research and development arrangements and other fees. Operating expenses related to VGX Int'l for the years ended December 31, 2013, 2012 and 2011 include $2.3 million, $871,000 and $5.3 million, respectively, related primarily to biologics manufacturing. At December 31, 2013 and 2012 the Company had an accounts receivable balance of $0 and $36,000, respectively, from VGX Int'l and its subsidiaries. At December 31, 2013, $231,000 of prepayments made to VGX Int'l were classified as long-term other assets on the consolidated balance sheet.

Prior to signing the Roche Agreement, the Company reacquired the rights, title and interest to hepatitis B in Asia previously licensed to VGX Int'l. As a result, the Company paid $300,000 to VGX Int'l as of December 31, 2013 based on the up-front payment received from Roche.

OncoSec Medical Incorporated

On March 24, 2011, the Company completed the sale of certain assets related to certain non-DNA vaccine technology and intellectual property relating to selective electrochemical tumor ablation ("SECTA") to OncoSec Medical Incorporated, or OncoSec, pursuant to an Asset Purchase Agreement dated March 14, 2011 by and between the Company and OncoSec. The Company has received payment in full of $3.0 million from OncoSec as of December 31, 2013.

The Company's Chairman, Dr. Avtar Dhillon, is the non-executive Chairman of OncoSec.

On September 28, 2011, the Company signed an amended agreement with OncoSec extending the term of the second payment owed to the Company in exchange for a warrant to purchase 1,000,000 shares of common stock of OncoSec. The warrant received was a five-year warrant with an exercise price of $1.20 per share. (See Note 5 for further discussion.)

On March 24, 2012, the Company signed a second amended agreement with OncoSec further extending the term of the payments owed to the Company in exchange for a warrant to purchase 3,000,000 shares of common stock of OncoSec. The warrant received was a five-year warrant with an exercise price of $1.00 per share. (See Note 5 for further discussion.)

16. Quarterly Financial Information (Unaudited)

The following is a summary of the quarterly results of operations of the Company for the years ended December 31, 2013 and 2012 (unaudited):

	Quarter Ended December 31, 2013	Quarter Ended September 30, 2013	Quarter Ended June 30, 2013	Quarter Ended March 31, 2013
Consolidated Statements of Operations:				
Revenue:				
Revenue under collaborative research and development arrangements	$822,217	$8,388,760	$14,311	$14,259
Revenue under collaborative research and development arrangements with affiliated entity	106,250	106,250	106,250	106,250
Grants and miscellaneous revenue	811,199	991,835	665,049	1,334,716
Total revenues	1,739,666	9,486,845	785,610	1,455,225
Operating Expenses:				
Research and development	6,404,005	5,438,405	4,411,082	5,115,112
General and administrative	4,339,539	3,282,796	3,046,586	2,974,153
Gain on sale of assets	(1,000,000)	—	(1,000,000)	—
Total operating expenses	9,743,544	8,721,201	6,457,668	8,089,265
Loss from operations	(8,003,878)	765,644	(5,672,058)	(6,634,040)
Interest and other income, net	8,576	46,787	37,391	39,460
Change in fair value of common stock warrants	(6,052,965)	(34,952,210)	(3,199,878)	(1,427,616)
(Loss) Gain from investment in affiliated entity	(1,419,536)	3,248,926	(2,032,051)	(836,084)
Net loss	(15,467,803)	(30,890,853)	(10,866,596)	(8,858,280)
Net loss attributable to non-controlling interest	13,473	13,443	14,008	14,160
Net loss attributable to Inovio Pharmaceuticals, Inc.	$(15,454,330)	$(30,877,410)	$(10,852,588)	$(8,844,120)
Loss per common share—basic and diluted:				
Net loss attributable to Inovio Pharmaceuticals, Inc. stockholders	$(0.07)	$(0.16)	$(0.06)	$(0.06)
Weighted average number of common shares—basic and diluted	208,509,676	191,956,155	179,954,816	156,155,532

	Quarter Ended December 31, 2012	Quarter Ended September 30, 2012	Quarter Ended June 30, 2012	Quarter Ended March 31, 2012
Consolidated Statements of Operations:				
Revenue:				
Revenue under collaborative research and development arrangements	$14,296	$22,495	$20,907	$24,838
Revenue under collaborative research and development arrangements with affiliated entity	142,483	222,484	106,250	106,250
Grants and miscellaneous revenue	977,974	609,717	308,925	1,562,033
Total revenues	1,134,753	854,696	436,082	1,693,121
Operating Expenses:				
Research and development	4,442,841	4,972,319	4,527,086	4,042,579
General and administrative	2,919,000	2,674,362	2,696,909	2,488,088
Gain on sale of assets	—	(500,000)	—	(651,000)
Total operating expenses	7,361,841	7,146,681	7,223,995	5,879,667
Loss from operations	(6,227,088)	(6,291,985)	(6,787,913)	(4,186,546)
Interest and other income, net	56,520	37,013	41,036	31,544
Change in fair value of common stock warrants	3,049,649	(1,113,638)	3,594,782	(3,548,173)
Gain (Loss) from investment in affiliated entity	2,449,615	736,121	(992,373)	(561,544)
Net loss	(671,304)	(6,632,489)	(4,144,468)	(8,264,719)
Net loss attributable to non-controlling interest	12,553	10,413	11,289	9,770
Net loss attributable to Inovio Pharmaceuticals, Inc.	$(658,751)	$(6,622,076)	$(4,133,179)	$(8,254,949)
Loss per common share—basic and diluted:				
Net loss attributable to Inovio Pharmaceuticals, Inc. stockholders	$—	$(0.05)	$(0.03)	$(0.06)
Weighted average number of common shares—basic and diluted	140,704,889	135,389,308	134,968,394	134,968,394

17. Subsequent Events

On March 4, 2014, the Company closed an underwritten public offering of 21,810,900 shares of the Company’s common stock, including 2,844,900 shares of common stock issued pursuant to the underwriter’s exercise of its overallotment option, at the public offering price of $2.90 per share. The net proceeds, after deducting the underwriter’s discounts and commission and other estimated offering expenses, were approximately $59.2 million.

In March 2014, the Company entered into an office lease (the "Lease") with a publicly owned real estate investment trust, located in Plymouth Meeting, Pennsylvania. The Company expects to occupy the new space commencing in the third quarter of 2014. The initial term of the Lease is 11.5 years. The Company intends to use the facility for office purposes.

The base rent adjusts periodically throughout the 11.5 year term of the Lease, with monthly payments ranging from $0 to $58,000. In addition, the Company will pay the landlord its share of operating expenses and a property management fee and has paid a security deposit of $49,000.

Subsequent to December 31, 2013, warrants and stock options to purchase 7,619,039 shares of common stock were exercised for total proceeds to the Company of $10.2 million.

F-31