UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

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

For the Fiscal Year Ended December 31, 2016

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 number: 0-31265

MABVAX THERAPEUTICS HOLDINGS, INC.

(Exact name of Registrant as specified in its charter)

Delaware	**93-0987903**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
11535 Sorrento Valley Rd., Suite 400, San Diego, CA	**92121**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (858) 259-9405

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

Title of Each Class	**Name of Each Exchange on Which Registered**
None	

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

Common Stock, $0.01 par value per share

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

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

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the 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 ☒ 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 (Sec. 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). YES ☒ NO ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (Sec.229.405 of this Chapter) is not contained herein, and will not be contained to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

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

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☒

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

The aggregate market value of the voting common stock held by non-affiliates of the Registrant was approximately $15,865,000 as of June 30, 2016, based upon the closing sale price on the OTCQB Market of $4.07 per share reported on such date.

As of March 1, 2017, there were 6,296,110 shares of the registrant’s common stock outstanding.

MABVAX THERAPEUTICS HOLDINGS, INC.
2016 ANNUAL REPORT ON FORM 10-K

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Disclosure Regarding Forward-Looking Statements

This Annual Report on Form 10-K, including the documents that we incorporate by reference, contains statements indicating expectations about future performance and other forward-looking statements. Forward-looking statements relate to future events or our future financial performance. We generally identify forward-looking statements by terminology such as "may," "will," "should," "expects," "plans," "anticipates," "could," "intends," "target," "projects," "contemplates," "believes," "estimates," "predicts," "potential" or "continue" or the negative of these terms or other similar words, although not all forward-looking statements contain these words. Forward-looking statements include, but are not limited to, statements regarding our or our management's expectations, hopes, beliefs, intentions or strategies regarding the future, such as our estimates regarding anticipated operating losses, future performance, future revenues and projected expenses; our liquidity and our expectations regarding our needs for and ability to raise additional capital; our ability to manage our expenses effectively and raise the funds needed to continue our business; our ability to retain the services of our current executive officers, directors and principal consultants; our ability to obtain and maintain regulatory approval of our existing products and any future products we may develop; the initiation, timing, progress and results of our preclinical and clinical trials, research and development programs; regulatory and legislative developments in the United States and foreign countries; the timing, costs and other limitations involved in obtaining regulatory approval for any product; the further preclinical or clinical development and commercialization of our product candidates; the potential benefits of our product candidates over other therapies; our ability to enter into any collaboration with respect to product candidates; the performance of our third-party manufacturers; our ability to obtain and maintain intellectual property protection for our products and operate our business without infringing upon the intellectual property rights of others; the successful development of our sales and marketing capabilities; the size and growth of the potential markets for our products and our ability to serve those markets; the rate and degree of market acceptance of any future products; our reliance on key scientific management or personnel; the payment and reimbursement methods used by private or governmental third-party payers; and other factors discussed elsewhere in this report or any document incorporated by reference herein or therein.

The words "believe," "may," "will," "estimate," "continue," "anticipate," "intend," "expect," "plan" and similar expressions may identify forward-looking statements, but the absence of these words does not mean that a statement is not forward-looking. The forward-looking statements contained in this report are based on our current expectations and beliefs concerning future developments and their potential effects on us. There can be no assurance that future developments affecting us will be those that we have anticipated. These forward-looking statements involve a number of risks, uncertainties (many of which are beyond our control) or other assumptions that may cause actual results or performance to be materially different from those expressed or implied by these forward-looking statements. These risks and uncertainties include, but are not limited to, those factors described in the section titled "Risk Factors." Should one or more of these risks or uncertainties materialize, or should any of our assumptions prove incorrect, actual results may vary from those projected in these forward-looking statements. We undertake no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as may be required under applicable securities laws. The section entitled "Risk Factors," as well as other sections in this report or incorporated by reference into this report, discuss some of the factors that could contribute to these differences.

The forward-looking statements made in this report relate only to events as of the date on which the statements are made. We undertake no obligation to update any forward-looking statement to reflect events or circumstances after the date on which the statement is made or to reflect the occurrence of unanticipated events.

This report also contains market data related to our business and industry. These market data include projections that are based on a number of assumptions. While we believe these assumptions to be reasonable and sound as of the date of this report, if these assumptions turn out to be incorrect, actual results may differ from the projections based on these assumptions. As a result, our markets may not grow at the rates projected by these data, or at all. The failure of these markets to grow at these projected rates may have a material adverse effect on our business, results of operations, financial condition and the market price of our common stock.

MabVax(R), MabVax Therapeutics(R) and our corporate logo are trademarks or registered trademarks of MabVax Therapeutics Holdings, Inc. All other brand names or trademarks appearing in this Annual Report are the property of their respective holders.

PART I

Item 1. Business.

Company Background

We are a Delaware corporation, originally incorporated in 1988 under the name Terrapin Diagnostics, Inc. in the state of Delaware, and subsequently renamed "Telik, Inc." in 1998, and thereafter renamed MabVax Therapeutics Holdings, Inc. in September 2014. Our principal corporate office is located at 11535 Sorrento Valley Road, Suite 400, San Diego, CA 92121 and our telephone number is (858) 259-9405. On July 8, 2014, we consummated a merger with MabVax Therapeutics, pursuant to which our subsidiary Tacoma Acquisition Corp. merged with and into MabVax Therapeutics, with MabVax Therapeutics surviving as our wholly owned subsidiary. This transaction is referred to as the "Merger." Our internet address is www.mabvax.com. Information on our website is not incorporated into this report.

Listing Reverse Split

On June 29, 2016, our stockholders approved a reverse stock split of our issued and outstanding shares of common stock at a range of between 1-for-2 and 1-for-15, with the specific ratio and effective time of the reverse stock split to be determined by our Board of Directors, or our Board. On August 2, 2016, the Board approved a 1-for-7.4 reverse stock split, or the Listing Reverse Split. The Listing Reverse Split was intended to allow us to meet the minimum share price requirement of The NASDAQ Capital Market, or NASDAQ. On August 11, 2016, we received approval from The NASDAQ Capital Market for the listing of our common stock under the symbol "MBVX", subject to implementation of the Listing Reverse Split and closing of our August 2016 public offering (the "August 2016 Public Offering"). On August 16, 2016, we implemented the Listing Reverse Split, closed on the August 2016 Public Offering and began trading on The NASDAQ Capital Market at the open of business on August 17, 2016.

Overview

We are a clinical-stage biotechnology company focused on the development of antibody-based products to address unmet medical needs in the treatment of cancer. MabVax has discovered a pipeline of human monoclonal antibody products based on the protective immune responses generated by patients who have been vaccinated against targeted cancers with our proprietary vaccines. MabVax's lead development program is centered around our HuMab-5B1 antibody, which is fully human and discovered from the immune response of cancer patients vaccinated with an antigen-specific vaccine during a Phase I trial at Memorial Sloan Kettering Cancer Center, or MSK. The antigen the antibody targets is expressed on more than 90% of pancreatic cancers, and also expressed in significant percentages on small cell lung cancer, stomach, colon and other cancers, making the antibody potentially broadly applicable to many types of cancers. We have other antibody candidates that are also in preclinical development.

Monoclonal antibodies are produced from a single DNA sequence encoded into multiple cells that all produce the same single antibody. We generate our pipeline of antibody-based product candidates from patients who have been vaccinated with propriety vaccines licensed from MSK. Our approach involves surveying the protective immune response from many patients to identify a monoclonal antibody candidate against a specific target on the surface of a cancer cell. We believe this approach provides us with a novel next-generation human antibody technology platform. We believe our approach to antibody discovery allows us to identify antibody candidates with superior performance characteristics while minimizing many of the toxicity and off target binding drawbacks (phenomenon occurring when antibodies bind to non-cancer cells) of other discovery technologies.

Our Growth and Core Business Strategy

Our primary business strategy is to develop our early antibody product candidates through proof of concept clinical trials, which may represent either phase I or phase II clinical trials depending on the program and extent of progress. We intend to then partner those product candidates having the highest clinical and commercial potential from our discovery library of antibody candidates.

Recent Developments

In November 2016 we reported on interim results of our two HuMab-5B1 antibody phase I clinical development programs evaluating the use of our therapeutic antibody we designate as MVT-5873, and our immuno-PET imaging agent we designate as MVT-2163, comprised of MVT-5873 conjugated to a radio label. In December 2016 we submitted an investigational new drug application, or IND, to the U.S. Food and Drug Administration, or FDA, for our radioimmunotherapy product candidate we designate as MVT-1075, comprised of MVT-5873 conjugated to a low-energy radiation emitter. These three product candidates are intended for use in patients with locally advanced and metastatic pancreatic cancer or other malignancies expressing the same cancer antigen known as CA19.9.

MVT-5873 Clinical Development Program Progress in Treating Pancreatic Cancer, and Near-term Plan

In our progress report released in November 2016, we stated that the safety of MVT-5873 had been established at three incremental dose levels by treating 16 patients at three clinical sites. The purpose of this phase I clinical trial, initiated in February 2016, is to establish safety and tolerability, and to determine the recommended phase II dose. Patients entering this part of the trial have progressive locally advanced or metastatic disease and have failed all previous treatments.

As of mid-November 2016, we reported that 28 subjects had consented to treatment, of which 16 subjects had been treated. Of the remaining subjects, nine had failed the screening tests, and three were still in the screening process. Of the 16 patients that had been treated as of that date, six were continuing to receive treatment beyond the study design of a 28-day treatment cycle. Patients are able to remain on therapy beyond the initial 28-day treatment and safety assessment cycle based on acceptable dose tolerability and investigator assessment of continued benefit from the treatment. Every second treatment cycle the investigator assesses disease status using RECIST 1.1 measurement criteria to evaluate tumor response rate and duration of response. Investigators report that seven of the 16 patient patients converted from progressive disease to stable disease lasting from three months to eight months. We plan to continue to recruit patients in Part 1 of the study of MVT-5873, which is intended to establish the recommended phase II dose as a monotherapy.

In early February 2017, we reported that out of the total of 22 patients treated to date, eight had stable disease after at least two treatment cycles, or two months, seven continued to have stable disease after at least four treatment cycles, or four months; and three continued to have stable disease after at least six treatment cycles, or six months.

As a consequence of establishing the current dosage safety level for MVT-5873 in Part 1 of the trial, we have established a sufficient dosage safety margin to initiate part 2 of our phase I study. Part 2 combines our MVT-5873 with a standard of care chemotherapy regimen in new diagnosed treatment naïve patients. The dosage levels established in our MVT-5873 monotherapy trial have cleared all subsequent dose levels utilized in our Phase I clinical study of MVT-2163 as an immuno-PET imaging agent as well as the dose levels planned for our clinical study of MVT-1075 that combines the antibody with a radioactive metal as a radioimmunotherapy product. We filed an IND with the FDA in late December 2016 and received an authorization from the FDA on January 27, 2017 to proceed with our phase I clinical trial in the first half of 2017.

MVT-2163 Clinical Development Program Progress in Imaging Pancreatic Cancer, and Near-term Plan

In our progress report released in November 2016, we stated that we had established interim safety, and acceptable pharmacokinetics and biodistribution of MVT-2163 in our phase I clinical trial. We have completed the initial two cohorts of patients as specified in our protocol. In the first cohort we administered MVT-2163 alone and in the second cohort we administered MVT-2163 following a blocking dose of MVT-5873. We reported that the initial PET images demonstrated target specificity by correlation with lesions identified by conventional computerized tomography (CT) scans. The biodistribution data obtained in the first two cohorts demonstrated improvement in PET images by pre-administration of MVT-5873, as has been observed with other antibody based PET agents. We initiated the MVT-2163 phase I trial in June 2016 to evaluate a next generation diagnostic PET imaging agent in patients with locally advanced or metastatic adenocarcinoma of the pancreas (PDAC) or other CA19-9 positive malignancies. MVT-2163 (89Zr-HuMab-5B1) combines the well-established PET imaging radiolabel Zirconium [89Zr] with the targeting specificity of MVT-5873. We designed the trial to establish safety, pharmacokinetics, biodistribution, optimal time to obtain the PET image, and the amount of MVT-5873 to be used in co-administration to obtain optimized PET scan images. We continue to actively recruit patients and expect to establish the optimal co-administration dose of MVT-5873 early in 2017.

MVT-1075 Clinical Development Plan

We are developing HuMab-5B1 into a third potential product for use as a radioimmunotherapy that we have designated as MVT-1075. MVT-1075 represents a unique product opportunity for MabVax by conjugating MVT-5873 with a low-energy radiation emitter, 177Lu, which has a relatively short tissue penetration range to minimize potential side effects of the radiation. MVT-5873 provides the opportunity for tumor-specific targeting of a more potent analog of MVT-5873. We submitted our IND in late December 2016, and the IND was authorized to proceed on January 27, 2017. We plan to initiate the phase I trial of MVT-1075 in the first half of 2017.

Financing Activities

August Public Offering – On August 22, 2016, we closed a public offering of 1,297,038 shares of common stock and 665,281 shares of Series F Convertible Preferred Stock ("Series F Preferred Stock"), and warrants to purchase 1,962,319 shares of common stock at $5.55 per share and warrants to purchase 1,962,319 shares of common stock at $6.29 per share, at an offering price of $4.81 per share. For every one share of common stock or Series F Preferred Stock sold, we issued one warrant to purchase one share of common stock at $5.55 per share and one warrant to purchase one share of common stock at $6.29 per share. We received $9,438,753 in gross proceeds, before underwriting discounts and commissions and offering expenses totaling $871,305.

Oxford Loan – On January 15, 2016, we entered into a loan and security agreement with Oxford Finance LLC (the "Load and Security Agreement") providing for senior secured term loans to us in the aggregate principal amount of up to $10,000,000. On January 15, 2016, we received an initial loan of $5,000,000 under the Loan and Security Agreement. The option to draw the second $5,000,000 expired on September 30, 2016.

Underwritten Offering – On September 30, 2015, we entered into an underwriting agreement with Laidlaw & Company (UK) Ltd. relating to the issuance and sale in a public offering of 337,838 shares of our common stock and 168,919 three-year warrants to purchase 168,919 shares of our common stock at an initial exercise price of $9.77 per share (all numbers adjusted for the Listing Reverse Split). The shares of common stock were sold at a public offering price of $8.14 per share and the warrants were sold at a price of $0.01 per warrant (adjusted for the Listing Reverse Split). The offering closed on October 5, 2015 with total gross proceeds to us of $2,750,000.

April Private Placement – On March 31, 2015 and April 10, 2015, we entered into separate subscription agreements with accredited investors relating to the issuance and sale of $11,714,498 of units at a purchase price of $5.55 per unit (adjusted for the Listing Reverse Split), with each unit consisting of one share of common stock (or, at the election of any investor who, as a result of receiving common stock would hold in excess of 4.99% of our issued and outstanding common stock, shares of our newly designated Series E Convertible Preferred Stock ("Series E Preferred Stock")) and a thirty-month warrant to purchase one half of one share of common stock at an initial exercise price of $11.10 per share (adjusted for the Listing Reverse Split), such sale and issuance, the "April Private Placement," or the "Private Placement"). We conducted an initial closing of the April Private Placement on March 31, 2015, in which we sold an aggregate of $4,995,750 of units. Following the initial closing we entered into separate reconfirmation agreements with the investors in order to extend the initial closing date, increase the offering amount, and adopt a lockup agreement which was entered into by all investors who elected to continue their investment. A second closing was held on April 10, 2015 in which we entered into separate subscription agreements for the sale of an additional $6,718,751 of units.

On April 14, 2015, as a condition to participation by OPKO Health, Inc. ("OPKO") and Frost Gamma Investments Trust ("FGIT") in the April Private Placement, we entered into an Escrow Deposit Agreement with Signature Bank N.A. and OPKO, as amended on June 22, 2015, pursuant to which $3.5 million from the April Private Placement was deposited into and held at Signature Bank. The escrowed funds were released to us on June 30, 2015, as part of a letter agreement giving OPKO the right, but not the obligation until June 30, 2016, to nominate and have appointed up to two additional members of our Board of Directors, or to approve the person(s) nominated by the Company. The nominees selected were required to meet certain standard corporate governance practices and applicable national securities exchange requirements.

Preferred and Warrant Holders Common Stock Exchange Agreements – On March 25, 2015, we entered into separate exchange agreements (collectively, the "Exchange Agreements") with certain holders of our Series A-1 Convertible Preferred Stock ("Series A-1 Preferred Stock") and A-1 Warrants and holders of our Series B Convertible Preferred Stock ("Series B Preferred Stock") and Series B Warrants, all previously issued by us. Pursuant to the Exchange Agreements, the holders exchanged their respective preferred shares and warrants and relinquished any and all other rights they may have pursuant to such securities, their respective governing agreements and certificates of designation, including any related registration rights, in exchange for an aggregate of 342,906 shares of our common stock (adjusted for the Listing Reverse Split) and an aggregate of 238,156 shares of our newly designated Series D Convertible Preferred Stock ("Series D Preferred Stock" and, collectively, the "Exchange Securities").

Antibody Market Opportunity

The global monoclonal antibodies market was valued at $85 billion in 2015 and is expected to reach a value of $138 billion by 2024 (*The Pharma Letter*, February 11, 2016). Over the past couple of decades, the US FDA has approved more than a dozen monoclonal antibodies to treat certain cancers (cancer.org). Focused development of new monoclonal antibody based drugs is expected to continue for multiple reasons. Over the last few years much has been learned about using the human immune system to treat cancer. Several recently approved antibody therapies have demonstrated efficacy in stimulating the human immune system to attack certain cancers. Targeted therapies can attack cancer cells while minimizing damage to normal cells in the patient. Antibodies are complex molecules and are difficult and expensive to duplicate with biosimilars and therefore have a potentially longer commercial life. Currently approved monoclonal antibodies are reimbursed at favorable levels from federal, state, and private insurance providers.

Our lead antibody candidate targets an antigen that is over expressed on many metastatic pancreatic, colon, breast, and small cell lung cancers. The term "over expressed" refers to the antigen being present on the surface of the cancer cell in very large numbers. The amount of antigen present in blood samples is used to monitor patients as elevated levels occur in the blood due to shedding into the blood from these cancer cells. Patients who develop metastatic disease have a significantly poorer prognosis for survival.

We believe there is a critical unmet medical need for new and better treatment for metastatic pancreatic and colon cancer. According to NCI's SEER database (seer.cancer.gov), the five-year survival rate for patients with pancreatic cancer is just 7.7%. There are 53,000 new patients with pancreatic cancer diagnosed per year and more than half of these patients present at initial diagnosis with metastatic disease (Pancreatic Cancer Network's Pancreatic Facts 2016). In 2016 pancreatic cancer moved from the fourth leading cause of cancer related death in the U.S. to third, surpassing breast cancer (American Cancer Society Cancer statistics 2016 report,). According to the SEER database, there are about 134,000 patients diagnosed with cancer of the colon and rectum per year in the US. The five-year survival rate for the 35% of patients with metastatic colon cancer that is locally spread is 71% and the five-year survival of the 35% of patients that have regional spread is only 13.5%.

Pancreatic Cancer Imaging and Diagnosis

We believe that our radiolabeled HuMab-5B1 PET imaging antibody represents the only human derived agent in development specifically aimed at improving imaging in pancreatic cancer diagnosis over the standard of care (FDG-PET). Since the antigen targeted by the HuMab-5B1 antibody is over expressed on metastatic pancreatic cancer cells, this development effort represents a potentially important step forward in the diagnosis, staging, and assessment of the majority of patients newly diagnosed with pancreatic cancers. We believe that the market opportunity for a HuMab-5B1antibody-based radiopharmaceutical is significant in multiple ways. The ability of physicians to accurately diagnose, stage, and assess treatment outcomes in pancreatic cancer would be very important. Accurate determinations on the extent of disease and resectability are essential to improve outcomes in this cancer. We believe that limitations in FDG-PET imaging offers significant room for improvement in diagnostic technique and that accurate determinations on extent of disease and resectability are essential to improving outcomes in this cancer. Improvements in the sensitivity and specificity over FDG-PET could have a significant impact on improving diagnosis and clinical outcome.

Radioimmunotherapy: Therapeutic Treatment Product

In addition to developing our HuMab-5B1 as a stand-alone therapeutic agent as well as a PET imaging agent, we are developing a HuMab-5B1 based radioimmunotherapy, or RIT, product candidate as a potential treatment for pancreatic cancer and other CA19-9 positive tumors. Our preclinical animal studies have demonstrated the potential feasibility and experimental proof of concept for this new product candidate. We have learned from our 89Zr-HuMab-5B1 PET imaging clinical development program that we have sufficient safety and specificity of the product to proceed with clinical development of our RIT program. We submitted an IND to FDA for this product in December of 2016 and received FDA authorization in January 2017 to proceed with our proposed clinical trial. We anticipate initiating our clinical trial in the first half of 2017.

License and Development Agreements

Memorial Sloan Kettering

We have licensed from MSK the exclusive world-wide developmental and commercial rights to receive biological materials from vaccinated clinical trial participants enrolled in any of the clinical trials involving the vaccines licensed to us, allowing us to discover human monoclonal antibody-based therapeutics. MSK has issued patents or has pending patent applications on the vaccine antigen conjugates, mixtures of vaccine antigen conjugates and methods of use. This patent portfolio includes 20 issued patents in the US and the rest of world. We own all monoclonal antibodies produced by the antibody discovery program and we generally file patent applications directed to these antibodies once their potential therapeutic utility has been sufficiently demonstrated in animal models. A United States and an international patent application for each of the anti-sLea antibodies and the anti GD2 antibodies described in this document has been filed.

We have licensed exclusive rights from MSK to exploit key aspects of the work of Dr. Livingston (who is also a member of our board of directors) and colleagues, who over the last 30 years have developed a series of monovalent (targeting a single tumor cell surface antigen) cancer vaccines against cancers of neuroectodermal and epithelial (breast, ovarian colon, pancreatic) origin as well as small cell lung cancer, or SCLC. These target molecules on malignant cells, known as carbohydrate antigens, are the most extensively expressed antigenic targets on the cell surface of these types of cancers and play a key role in tissue invasion and metastasis. We expect to benefit from the years of work and significant expense already invested in the development and testing of the vaccines incorporating these antigens. Researchers at MSK have progressively developed highly immunogenic monovalent vaccines to each of the 11 validated target antigens that comprise the licensed vaccines. These monovalent vaccines or the combination of the monovalent forms into polyvalent vaccines (targeting multiple antigens) have been tested and refined not only in animal models but also in multiple clinical trials establishing immunogenicity, tolerability, and therapeutic utility. Our license agreement with MSK calls for MSK to complete all preclinical and Phase I clinical trial work at MSK's expense at which point the IND would be transferred to us for continued development.

Our lead cancer vaccines targeting recurrent sarcoma and ovarian cancer are currently in proof of concept Phase II multi-center clinical trials. Both trials are fully enrolled, and have received substantial federal grant monies to support their development.

Life Technologies Licensing Agreement

On September 24, 2015, we entered into a licensing agreement with Life Technologies Corporation, a subsidiary of ThermoFisher Scientific ("Life Technologies"). Under the agreement we agreed to license certain cell lines from Life Technologies to be used in the production of recombinant proteins for our clinical trials. The amount of the contract is for $450,000 and was fully expensed during 2015. We paid $225,000 during 2015 related to this contract with the remaining amount paid in 2016.

Rockefeller University Collaboration

In July 2015, we entered into a research collaboration agreement with Rockefeller University's Laboratory of Molecular Genetics and Immunology ("Rockefeller"). We provided antibody material to Rockefeller, which is exploring the mechanism of action of constant region (Fc) variants of the HuMab 5B1 in the role of tumor clearance. We will supply additional research materials as requested by the university, which is evaluating ways to optimize the function. Rockefeller is using that material to explore the mechanism of action of constant region (Fc) variants of the HuMab-5B1 in the role of tumor clearance and to seek to optimize the therapeutic effect. The current agreement allows researchers at Rockefeller to conduct research on antibodies discovered by us with the objective of improving their ability to kill cancer cells. If a viable drug candidate emerges from this collaboration, we have the right to enter into negotiations with Rockefeller for the right to exclusively license the technology used to improve our antibody for clinical and commercial development. If we and Rockefeller fail to reach agreement on terms for a license to the drug candidate that contains the combined technologies, Rockefeller does not have the right to license the drug candidate to a third party without our consent because the drug candidate contains our intellectual property embodied in the antibody.

Juno Option Agreement

On August 29, 2014, we entered into an Option Agreement with Juno Therapeutics, Inc. ("Juno") in exchange for a one-time up-front option fee in the low five figures. Pursuant to the option agreement, we granted Juno the option to obtain an exclusive, world-wide, royalty-bearing license authorizing Juno to develop, make, have made, use, import, have imported, sell, have sold, offer for sale and otherwise exploit certain patents we developed with respect to fully human antibodies with binding specificity against human GD2 or sialyl-Lewis A antigens and certain of our controlled biologic materials. As of June 30, 2016, the option agreement expired and Juno no longer has a contractual right for use of our binding domains for use in the construction of CAR T-cells.

Patents

We strive to protect the proprietary technology that we believe is important to our business, including seeking and maintaining patents intended to cover our vaccines and monoclonal antibody-based candidates, their methods of use and processes for their manufacture and any other inventions that are commercially important to the development of our business. We also rely on trade secrets to protect aspects of our business that are not amenable to, or that we do not consider appropriate for, patent protection.

We are the exclusive licensee, sole assignee or co-assignee of 14 granted United States patents, 2 pending United States patent applications, 7 international patents and 19 pending international patent applications. The patents and patent applications include claims to vaccine antigen conjugates, mixtures of vaccine antigen conjugates that makeup polyvalent vaccine candidates, processes for their preparation and their use as a vaccine. Two of the pending patent applications in the United States and 2 international patent applications have claims to human anti-sLe*a* and anti-GD2 monoclonal antibodies, nucleic acids encoding the human anti-sLe*a* and anti-GD2 monoclonal antibodies, processes for their preparation and their use as therapeutic agents.

Our success will depend significantly on our ability to obtain and maintain patents and other proprietary protection for commercially important technology, inventions and know-how related to our business, defend and enforce our patents, maintain our licenses to use intellectual property owned by third parties, preserve the confidentiality of our trade secrets and operate without infringing the valid and enforceable patents and other proprietary rights of third parties. We also rely on know-how, continuing technological innovation and in-licensing opportunities to develop, strengthen, and maintain our proprietary position in the field of anti-fungal agents.

We believe that we have a sufficient intellectual property position and substantial know-how relating to the development and commercialization of our vaccine and monoclonal antibody-based candidates in the markets described herein, consisting of patents or patent applications that we have licensed from MSK or that we have filed ourselves. We cannot be sure that patents will be granted with respect to any of our pending patent applications or with respect to any patent applications filed by us in the future, nor can we be sure that any of our existing patents or any patents that may be granted to us in the future will be commercially useful in protecting our technology.

Our objective is to continue to expand our intellectual property estate by filing patent applications directed to our vaccine and monoclonal antibody programs. We intend to pursue, maintain, and defend patent rights, whether developed internally or licensed from third parties, and to protect the technology, inventions, and improvements that are commercially important to the development of our business.

Marketing and Sales

We currently do not have an internal sales force and do not intend to commercialize on our own any of our product candidates that receive FDA approval. We intend to license, or enter into strategic alliances with, larger companies in the biopharmaceutical businesses, which are equipped to manufacture, market and/or sell our products, if any, through their well-developed manufacturing capabilities and distribution networks. We intend to license some or all of our worldwide patent rights to more than one third party to achieve the fullest development, marketing and distribution of any products we develop.

Manufacturing and Raw Materials

We currently use, and expect to continue the use of, contract manufacturers for the manufacture of our product candidates. Our contract manufacturers are subject to extensive governmental regulation. Regulatory authorities in our markets require that pharmaceutical products be manufactured, packaged and labeled in conformity with current cGMPs. We intend to establish a quality control and quality assurance program, which will include a set of standard operating procedures and specifications designed to ensure that our products are manufactured in accordance with cGMPs, and other applicable domestic and foreign regulations.

We currently do not have any clinical or commercial antibody-based therapeutic manufacturing capabilities. We may or may not manufacture the products we develop, if any. We intend to use contract manufacturers for the manufacture of our product candidates.

Competition

The drug development and medical diagnostic industries are characterized by rapidly evolving technology and intense competition. Our competitors include development and diagnostic companies that have significantly more financial, technical, and marketing resources. In addition, there are a significant number of biotechnology companies working on evolving technologies that may supplant our technology or make it obsolete. Academic institutions, government agencies, and other public and private research organizations are also conducting research activities and may commercialize product candidates either on their own or through joint ventures that compete with one or more of our product candidates. We are aware of certain development projects for products to prevent or treat certain diseases targeted by us. The existence of these potential products or other products or treatments of which we are not aware, or products or treatments that may be developed in the future, may adversely affect the desirability and commercial success of any product candidate for which we receive FDA approval.

There are a number of companies working in the area of human antibody development and imaging that could compete in similar clinical areas, including disease detection, therapeutic response monitoring and minimal disease detection. These companies include AbCellera Biologics, Inc., Agenus Inc., Atreca, Inc., Immunomedics, Inc., Theraclone Sciences Inc., and Trellis Bioscience.

Government Regulation

In the United States, pharmaceutical products are subject to extensive regulation by the FDA. The Federal Drug and Cosmetic Act and other federal and state statutes and regulations, govern, among other things, the research, development, testing, manufacture, storage, recordkeeping, approval, labeling, promotion and marketing, distribution, post-approval monitoring and reporting, sampling, and import and export of pharmaceutical products. The FDA has very broad enforcement authority and failure to abide by applicable regulatory requirements can result in administrative or judicial sanctions being imposed on us, including warning letters, refusals of government contracts, clinical holds, civil penalties, injunctions, restitution, disgorgement of profits, recall or seizure of products, total or partial suspension of production or distribution, withdrawal of approval, refusal to approve pending applications, and criminal prosecution.

FDA Approval Process

We believe that our product candidates will be regulated by the FDA as drugs. No manufacturer may market a new drug until it has submitted a New Drug Application, or NDA, to the FDA, and the FDA has approved it. The steps required before the FDA may approve an NDA generally include:

- preclinical laboratory tests and animal tests conducted in compliance with FDA's good laboratory practice requirements;
- development, manufacture and testing of active pharmaceutical product and dosage forms suitable for human use in compliance with current good manufacturing practices, or GMP;
- the submission to the FDA of an investigational new drug application, or IND, for human clinical testing, which must become effective before human clinical trials may begin;
- adequate and well-controlled human clinical trials to establish the safety and efficacy of the product for its specific intended use(s);
- the submission to the FDA of a New Drug Application, or NDA; and
- FDA review and approval of the NDA.

Preclinical tests include laboratory evaluation of the product candidate, as well as animal studies to assess the potential safety and efficacy of the product candidate. The conduct of the pre-clinical tests must comply with federal regulations and requirements including good laboratory practices. We must submit the results of the preclinical tests, together with manufacturing information, analytical data and a proposed clinical trial protocol to the FDA as part of an IND, which must become effective before we may commence human clinical trials. The IND will automatically become effective 30 days after its receipt by the FDA, unless the FDA raises concerns or questions before that time about the conduct of the proposed trials. In such a case, we must work with the FDA to resolve any outstanding concerns before clinical trials can proceed. We cannot be sure that submission of an IND will result in the FDA allowing clinical trials to begin, or that, once begun, issues will not arise that suspend or terminate such trials. The study protocol and informed consent information for patients in clinical trials must also be submitted to an institutional review board for approval. An institutional review board may also require the clinical trial at the site to be halted, either temporarily or permanently, for failure to comply with the institutional review board's requirements or may impose other conditions.

Clinical trials involve the administration of the product candidate to humans under the supervision of qualified investigators, generally physicians not employed by or under the trial sponsor's control. Clinical trials are typically conducted in three sequential phases, though the phases may overlap or be combined. In Phase 1, the initial introduction of the drug into healthy human subjects, the drug is usually tested for safety (adverse effects), dosage tolerance and pharmacologic action, as well as to understand how the drug is taken up by and distributed within the body. Phase 2 usually involves studies in a limited patient population (individuals with the disease under study) to:

- evaluate preliminarily the efficacy of the drug for specific, targeted conditions;
- determine dosage tolerance and appropriate dosage as well as other important information about how to design larger Phase 3 trials; and
- identify possible adverse effects and safety risks.

Phase 3 trials generally further evaluate clinical efficacy and test for safety within an expanded patient population. The conduct of the clinical trials is subject to extensive regulation, including compliance with good clinical practice regulations and guidance.

The FDA may order the temporary or permanent discontinuation of a clinical trial at any time or impose other sanctions if it believes that the clinical trial is not being conducted in accordance with FDA requirements or presents an unacceptable risk to the clinical trial patients. We may also suspend clinical trials at any time on various grounds.

The results of the preclinical and clinical studies, together with other detailed information, including the manufacture and composition of the product candidate, are submitted to the FDA in the form of an NDA requesting approval to market the drug. FDA approval of the NDA is required before marketing of the product may begin in the U.S. If the NDA contains all pertinent information and data, the FDA will "file" the application and begin review. The FDA may "refuse to file" the NDA if it does not contain all pertinent information and data. In that case, the applicant may resubmit the NDA when it contains the missing information and data. Once the submission is accepted for filing, the FDA begins an in-depth review. The FDA has agreed to certain performance goals in the review of new drug applications. Most such applications for non-priority drug products are reviewed within 10 months. The review process, however, may be extended by FDA requests for additional information, preclinical or clinical studies, clarification regarding information already provided in the submission, or submission of a risk evaluation and mitigation strategy. The FDA may refer an application to an advisory committee for review, evaluation and recommendation as to whether the application should be approved. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions. Before approving an NDA, the FDA will typically inspect the facilities at which the product candidate is manufactured and will not approve the product candidate unless GMP compliance is satisfactory. FDA also typically inspects facilities responsible for performing animal testing, as well as clinical investigators who participate in clinical trials. The FDA may refuse to approve an NDA if applicable regulatory criteria are not satisfied, or may require additional testing or information. The FDA may also limit the indications for use and/or require post-marketing testing and surveillance to monitor the safety or efficacy of a product. Once granted, product approvals may be withdrawn if compliance with regulatory standards is not maintained or problems are identified following initial marketing.

The testing and approval process requires substantial time, effort and financial resources, and our product candidates may not be approved on a timely basis, if at all. The time and expense required to perform the clinical testing necessary to obtain FDA approval for regulated products can frequently exceed the time and expense of the research and development initially required to create the product. The results of preclinical studies and initial clinical trials of our product candidates are not necessarily predictive of the results from large-scale clinical trials, and clinical trials may be subject to additional costs, delays or modifications due to a number of factors, including difficulty in obtaining enough patients, investigators or product candidate supply. Failure by us to obtain, or any delay in obtaining, regulatory approvals or in complying with requirements could adversely affect the commercialization of product candidates and our ability to receive product or royalty revenues.

Other Regulatory Requirements

After approval, drug products are subject to extensive continuing regulation by the FDA, which include company obligations to manufacture products in accordance with Good Manufacturing Practice, or GMP, maintain and provide to the FDA updated safety and efficacy information, report adverse experiences with the product, keep certain records and submit periodic reports, obtain FDA approval of certain manufacturing or labeling changes, and comply with FDA promotion and advertising requirements and restrictions. Failure to meet these obligations can result in various adverse consequences, both voluntary and FDA-imposed, including product recalls, withdrawal of approval, restrictions on marketing, and the imposition of civil fines and criminal penalties against the NDA holder. In addition, later discovery of previously unknown safety or efficacy issues may result in restrictions on the product, manufacturer or NDA holder.

We and any manufacturers of our products are required to comply with applicable FDA manufacturing requirements contained in the FDA's GMP regulations. GMP regulations require among other things, quality control and quality assurance as well as the corresponding maintenance of records and documentation. The manufacturing facilities for our products must meet GMP requirements to the satisfaction of the FDA pursuant to a pre-approval inspection before we can use them to manufacture our products. We and any third-party manufacturers are also subject to periodic inspections of facilities by the FDA and other authorities, including procedures and operations used in the testing and manufacture of our products to assess our compliance with applicable regulations.

With respect to post-market product advertising and promotion, the FDA imposes a number of complex regulations on entities that advertise and promote pharmaceuticals, which include, among others, standards for direct-to-consumer advertising, promoting drugs for uses or in patient populations that are not described in the drug's approved labeling (known as "off-label use"), industry-sponsored scientific and educational activities, and promotional activities involving the internet. Failure to comply with FDA requirements can have negative consequences, including adverse publicity, enforcement letters from the FDA, mandated corrective advertising or communications with doctors, and civil or criminal penalties. Although physicians may prescribe legally available drugs for off-label uses, manufacturers may not market or promote such off-label uses.

Changes to some of the conditions established in an approved application, including changes in indications, labeling, or manufacturing processes or facilities, require submission and FDA approval of a new NDA or NDA supplement before the change can be implemented. An NDA supplement for a new indication typically requires clinical data similar to that in the original application, and the FDA uses the same procedures and actions in reviewing NDA supplements as it does in reviewing NDAs.

Adverse event reporting and submission of periodic reports is required following FDA approval of an NDA. The FDA also may require post-marketing testing, known as Phase 4 testing, risk minimization action plans and surveillance to monitor the effects of an approved product or place conditions on an approval that could restrict the distribution or use of the product.

Outside the United States, our ability to market a product is contingent upon receiving marketing authorization from the appropriate regulatory authorities. The requirements governing marketing authorization, pricing and reimbursement vary widely from jurisdiction to jurisdiction. At present, foreign marketing authorizations are applied for at a national level, although within the European Union registration procedures are available to companies wishing to market a product in more than one European Union member state.

We are also subject to various environmental, health and safety regulations including those governing laboratory procedures and the handling, use, storage, treatment, and disposal of hazardous materials. From time to time, and in the future, our operations may involve the use of hazardous materials.

Orphan Drugs

Under the Orphan Drug Act of 1983, the FDA may grant orphan drug designation to drugs or biologics intended to treat a rare disease or condition, which is generally defined as a disease or condition that affects fewer than 200,000 individuals in the United States. Orphan drug designation must be requested before submitting an NDA. After the FDA grants orphan drug designation, the generic identity of the drug and its potential orphan use are disclosed publicly by the FDA. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process. The first applicant to receive FDA approval for a particular active ingredient to treat a particular disease with FDA orphan drug designation is entitled to a seven-year exclusive marketing period in the United States for that product, for that indication. During the seven-year exclusivity period, the FDA may not approve any other applications to market the same drug or biologic for the same disease, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity. Orphan drug exclusivity does not prevent the FDA from approving a different drug or biologic for the same disease or condition, or the same drug or biologic for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the NDA application user fee.

Non-U.S. Regulation

Before our products can be marketed outside of the United States, they are subject to regulatory approval of the respective authorities in the country in which the product should be marketed. The requirements governing the conduct of clinical trials, product licensing, pricing and reimbursement vary widely from country to country. No action can be taken to market any product in a country until an appropriate application has been approved by the regulatory authorities in that country. The current approval process varies from country to country, and the time spent in gaining approval varies from that required for FDA approval. In certain countries, the sales price of a product must also be approved. The pricing review period often begins after market approval is granted. Even if a product is approved by a regulatory authority, satisfactory prices might not be approved for such product.

In Europe, marketing authorizations may be submitted at a centralized, a decentralized or national level; however, the centralized procedure is mandatory for the approval of biotechnology products and provides for the grant of a single marketing authorization that is valid in all European Union member states. There can be no assurance that the chosen regulatory strategy will secure regulatory approval on a timely basis or at all.

While we intend to market our products outside the United States in compliance with our respective license agreements, we have not made any applications with non-U.S. authorities and have no timeline for such applications or marketing.

Item 1A. Risk Factors.

Our business faces significant risks, some of which are set forth below to enable readers to assess, and be appropriately apprised of, many of the risks and uncertainties applicable to the forward-looking statements made in this Annual Report. You should carefully consider these risk factors as each of these risks could adversely affect our business, operating results and financial condition. If any of the events or circumstances described in the following risks actually occurs, our business may suffer, the trading price of our common stock could decline and our financial condition or results of operations could be harmed. Given these risks and uncertainties, you are cautioned not to place undue reliance on forward-looking statements. These risks should be read in conjunction with the other information set forth in this Annual Report. There may be additional risks faced by our business, though we do believe that the risks set forth below reflect the more important ones.

We will be required to raise additional funds to finance our operations and remain a going concern; we may not be able to do so when necessary, and/or the terms of any financings may not be advantageous to us.

Our operations to date have consumed substantial amounts of cash. Negative cash flows from our operations are expected to continue over at least the next several years. Our cash utilization amount is highly dependent on the progress of our product development programs, particularly, the results of our preclinical and clinical studies and those of our partners, the cost, timing and outcomes of regulatory approval for our product candidates, and the rate of recruitment of patients in our human clinical trials. In addition, the further development of our ongoing clinical trials will depend on upcoming analysis and results of those studies and our financial resources at that time.

We will require future additional capital infusions including public or private financing, strategic partnerships or other arrangements with organizations that have capabilities and/or products that are complementary to our own capabilities and/or products, in order to continue the development of our product candidates. However, there can be no assurances that we will complete any financings, strategic alliances or collaborative development agreements, and the terms of such arrangements may not be advantageous to us. Any additional equity financing will be dilutive to our current stockholders and debt financing, if available, may involve restrictive covenants. If we raise funds through collaborative or licensing arrangements, we may be required to relinquish, on terms that are not favorable to us, rights to some of our technologies or product candidates that we would otherwise seek to develop or commercialize. Our failure to raise capital when needed could materially harm our business, financial condition and results of operations.

Additionally, we granted certain rights to approve future (i) issuances of our securities, (ii) equity or debt financings and (iii) sales of any development product assets currently held by us, subject to certain exceptions, for as long as any lead investor in the August 2016 Public Offering holds 50% or more of the shares of common stock (or Series F Preferred Stock) purchased by a lead investor in the August 2016 Public Offering or until a financing with net proceeds to us of at least $7.5 million in which we are able to sell our securities at a minimum per share price of $7.40 or greater. There can be no assurance that such lead investor will provide consent and this requirement may make it difficult for us to raise capital, refinance indebtedness or borrow additional funds.

Our ongoing capital requirements will depend on numerous factors, including: the progress and results of preclinical testing and clinical trials of our product candidates under development; the costs of complying with the FDA and other domestic and foreign regulatory agency requirements, the progress of our research and development programs and those of our partners; the time and costs expended and required to obtain any necessary or desired regulatory approvals; the resources that we devote to manufacturing expenditures; our ability to enter into licensing arrangements, including any unanticipated licensing arrangements that may be necessary to enable us to continue our development and clinical trial programs; the costs and expenses of filing, prosecuting and, if necessary, enforcing our patent claims, or defending against possible claims of infringement by third-party patent or other technology rights; the cost of commercialization activities and arrangements, if any, that we undertake; and, if and when approved, the demand for our products, which demand depends in turn on circumstances and uncertainties that cannot be fully known, understood or quantified unless and until the time of approval, including the range of indications for which any product is granted approval.

The terms of our secured debt facility require us to meet certain operating and financial covenants and place restrictions on our operating and financial flexibility. If we raise additional capital through debt financing, the terms of any new debt could further restrict our ability to operate our business.

Effective in January 2016, we entered into a $10 million loan and security agreement with Oxford Finance LLC, or Oxford Finance, that is secured by a lien covering substantially all of our assets, excluding intellectual property. As of December 31, 2016, we had an outstanding principal balance of $5 million. The option to draw the second $5,000,000 expired on September 30, 2016. The loan and security agreement contains customary affirmative and negative covenants and events of default. The affirmative covenants include, among others, covenants requiring us to maintain our legal existence and governmental approvals, deliver certain financial reports and maintain insurance coverage. The negative covenants include, among others, restrictions on transferring collateral, changing our business, incurring additional indebtedness, engaging in mergers or acquisitions, paying dividends or making other distributions, making investments and creating other liens on our assets, in each case subject to customary exceptions. If we default under the loan agreement, the lenders may accelerate all of our repayment obligations and take control of our pledged assets, potentially requiring us to renegotiate our agreement on terms less favorable to us or to immediately cease operations. Further, if we are liquidated, the lender's right to repayment would be senior to the rights of the holders of our common stock and preferred stock to receive any proceeds from the liquidation. The lenders could declare a default upon the occurrence of any event that they interpret as a material adverse change as defined under the loan agreement, thereby requiring us to repay the loan immediately or to attempt to reverse the declaration of default through negotiation or litigation. Any declaration by the lenders of an event of default could significantly harm our business and prospects and could cause the price of our common stock to decline. If we raise any additional debt financing, the terms of such additional debt could further restrict our operating and financial flexibility.

We have a history of losses, and we anticipate that we will continue to incur losses in the future; our auditors have included in their audit report an explanatory paragraph as to substantial doubt as to our ability to continue as a going concern.

We have experienced net losses every year since our inception and, as of December 31, 2016, had an accumulated deficit of $78,262,261. Our auditors have included in their audit report a "going concern" explanatory paragraph as to substantial doubt as to our ability to continue as a going concern that assumes the realization of our assets and the satisfaction of our liabilities and commitments in the normal course of business. We anticipate continuing to incur substantial additional losses over at least the next several years due to, among other factors, expenses related to the following: conducting Phase I clinical trials with the HuMab-5B1 antibody, preclinical testing of follow-on antibody candidates, investor and public relations, SEC compliance efforts, anticipated research and development activities and the general and administrative expenses associated with each of these activities. We have not yet commercialized any product candidates. Our ability to attain profitability will depend upon our ability to develop and commercialize products that are effective and commercially viable, to obtain regulatory approval for the manufacture and sale of our products and to license or otherwise market our products successfully. We may never achieve profitability, and even if we do, we may not be able to sustain being profitable. If we are unable to obtain additional capital we may be forced to license, sell or terminate our activities with respect to promising technologies which may require us to agree to disadvantageous terms that will prevent us from realizing the potential value from the results of our efforts and expenditures.

If we are unable to obtain required regulatory approvals, we will be unable to market and sell our product candidates.

Our product candidates are subject to extensive governmental regulations relating to development, clinical trials, manufacturing, oversight of clinical investigators, recordkeeping and commercialization. Rigorous preclinical testing and clinical trials and an extensive regulatory review and approval process are required to be successfully completed in the United States and in each foreign jurisdiction in which we offer our products before a new drug or other product can be sold in such jurisdictions. Satisfaction of these and other regulatory requirements is costly, time consuming, uncertain, and subject to unanticipated delays. The time required to obtain approval by the FDA, or the regulatory authority in such other jurisdictions is unpredictable and often exceeds five years following the commencement of clinical trials, depending upon the complexity of the product candidate and the requirements of the applicable regulatory agency.

In connection with the clinical development of our product candidates, we face risks that:

- the product candidate may not prove to be safe and efficacious;
- patients may die or suffer serious adverse effects for reasons that may or may not be related to the product candidate being tested;
- we may fail to maintain adequate records of observations and data from our clinical trials, to establish and maintain sufficient procedures to oversee, collect data from, and manage clinical trials, or to monitor clinical trial sites and investigators to the satisfaction of the FDA or other regulatory agencies;
- the results of later-phase clinical trials may not confirm the results of earlier clinical trials; and
- the results from clinical trials may not meet the level of statistical significance or clinical benefit-to-risk ratio required by the FDA or other regulatory agencies for marketing approval.

Only a small percentage of product candidates for which clinical trials are initiated receive approval for commercialization. Furthermore, even if we do receive regulatory approval to market a product candidate, any such approval may be subject to limitations such as those on the indicated uses for which we may market a particular product candidate.

Our product candidates have not completed clinical trials, and may never demonstrate sufficient safety and efficacy in order to do so.

Our product candidates are in the clinical and pre-clinical stages of development. In order to achieve profitable operations, we alone, or in collaboration with others, must successfully develop, manufacture, introduce and market our products. The time frame necessary to achieve market success for any individual product is long and uncertain. The products we are currently developing will require significant additional research, development and preclinical and clinical testing prior to application for commercial use or sale. A number of companies in the biotechnology and pharmaceutical industries have suffered significant setbacks in clinical trials, even after showing promising results in early or later-stage studies or clinical trials. Although we have obtained some favorable results to-date in preclinical studies and clinical trials of certain of our potential products, such results may not be indicative of results that will ultimately be obtained in or throughout such clinical trials, and clinical trials may not show any of our products to be safe or capable of producing a desired result. Additionally, we may encounter problems in our clinical trials that may cause us to delay, suspend or terminate those clinical trials.

Further, our research or product development efforts may not be successfully completed, any compounds we currently have under development may not be successfully developed into drugs, may not receive regulatory approval on a timely basis, if at all, and competitors may develop and bring to market products or technologies that render our potential products obsolete. If any of these events occur, our business would be materially and adversely affected.

If clinical trials or regulatory approval processes for our product candidates are prolonged, delayed or suspended, we may be unable to commercialize our product candidates on a timely basis, which would require us to incur additional costs and delay our receipt of any revenue from potential product sales.

We cannot predict whether we will encounter problems with any of our completed, ongoing or planned clinical trials that will cause us or any regulatory authority to delay or suspend those clinical trials or delay the analysis of data derived from them. A number of events, including any of the following, could delay the completion of our ongoing and planned clinical trials and negatively impact our ability to obtain regulatory approval for, and to market and sell, a particular product candidate:

- conditions imposed on us by the FDA or another foreign regulatory authority regarding the scope or design of our clinical trials;
- delays in obtaining, or our inability to obtain, required approvals from institutional review boards or other reviewing entities at clinical sites selected for participation in our clinical trials;
- insufficient supply of our product candidates or other materials necessary to conduct and complete our clinical trials;
- slow enrollment and retention rate of subjects in our clinical trials;
- serious and unexpected drug-related side effects related to the product candidate being tested; and
- delays in meeting manufacturing and testing standards required for production of clinical trial supplies.

Commercialization of our product candidates may be delayed by the imposition of additional conditions on our clinical trials by the FDA or any other applicable foreign regulatory authority or the requirement of additional supportive studies by the FDA or such foreign regulatory authority. In addition, clinical trials require sufficient patient enrollment, which is a function of many factors, including the size of the patient population, the nature of the trial protocol, the proximity of patients to clinical sites, the availability of effective treatments for the relevant disease, the conduct of other clinical trials that compete for the same patients as our clinical trials, and the eligibility criteria for our clinical trials. Our failure to enroll patients in our clinical trials could delay the completion of the clinical trial beyond its expectations. In addition, the FDA could require us to conduct clinical trials with a larger number of subjects than we may have projected for any of our product candidates. We may not be able to enroll a sufficient number of patients in a timely or cost-effective manner. Furthermore, enrolled patients may drop out of our clinical trials, which could impair the validity or statistical significance of the clinical trials.

We do not know whether our clinical trials will begin as planned, will need to be restructured, or will be completed on schedule, if at all. Delays in our clinical trials will result in increased development costs for our product candidates, and our financial resources may be insufficient to fund any incremental costs. In addition, if our clinical trials are delayed, our competitors may be able to bring products to market before we do and the commercial viability of our product candidates could be limited. In cases where an outside party, such as the NCI conducts a clinical trial on our behalf, we may not have direct involvement in discussions with the FDA regarding the factors discussed above.

We are substantially dependent on the success of our product candidates, MVT-5873, MVT-2163 and MVT-1075, and we cannot provide any assurance that any of our product candidates will be commercialized.

To date, our main focus and the investment of a significant portion of our efforts and financial resources has been in the development of our product candidates, MVT-5873, MVT-2163, and MVT-1075, which are in clinical development. Our future success depends heavily on our ability to successfully manufacture, develop, obtain regulatory approval, and commercialize these product candidates, which may never occur. Before commercializing either product candidate, we will require additional clinical trials and regulatory approvals for which there can be no guarantee that we will be successful. We currently generate no revenues from our product candidates, and we may never be able to develop or commercialize a marketable drug.

Our product candidates will remain subject to ongoing regulatory review even if they receive marketing approval, and if we fail to comply with continuing regulations, we could lose these approvals and the sale of any of our approved commercial products could be suspended.

Even if we receive regulatory approval to market a particular product candidate, the manufacturing, labeling, packaging, adverse event reporting, storage, advertising, promotion, and record keeping related to the product will remain subject to extensive regulatory requirements. If we fail to comply with the regulatory requirements of the FDA and other applicable domestic and foreign regulatory authorities or discover any previously unknown problems with any approved product, manufacturer, or manufacturing process, we could be subject to administrative or judicially imposed sanctions, including:

- restrictions on the products, manufacturers, or manufacturing processes;
- warning letters;
- civil or criminal penalties;
- fines;
- injunctions;
- product seizures or detentions;
- pressure to initiate voluntary product recalls;
- suspension or withdrawal of regulatory approvals; and
- refusal to approve pending applications for marketing approval of new products or supplements to approved applications.

Our industry is highly competitive, and our product candidates may become obsolete.

We are engaged in a rapidly evolving field. Competition from other pharmaceutical companies, biotechnology companies and research and academic institutions is intense and likely to increase. Many of those companies and institutions have substantially greater financial, technical and human resources than we do. Those companies and institutions also have substantially greater experience in developing products, conducting clinical trials, obtaining regulatory approval and in manufacturing and marketing pharmaceutical products. Our competitors may succeed in obtaining regulatory approval for their products more rapidly than we do. Competitors have developed or are in the process of developing technologies that are, or in the future may be, the basis for competitive products. We are aware of potential competitors developing products similar to our sarcoma vaccine, ovarian cancer vaccine and pancreatic cancer antibodies product candidates. Our competitors may succeed in developing products that are more effective and/or cost competitive than those we are developing, or that would render our product candidates less competitive or even obsolete. In addition, one or more of our competitors may achieve product commercialization or patent protection earlier than we do, which could materially adversely affect our business.

If physicians and patients do not accept our future products or if the market for indications for which any product candidate is approved is smaller than expected, we may be unable to generate significant revenue, if any.

Even if any of our product candidates obtain regulatory approval, they may not gain market acceptance among physicians, patients, and third-party payers. Physicians may decide not to recommend our treatments for a variety of reasons including:

- timing of market introduction of competitive products;
- demonstration of clinical safety and efficacy compared to other products;
- cost-effectiveness;
- limited or no coverage by third-party payers;
- convenience and ease of administration;
- prevalence and severity of adverse side effects;
- restrictions in the label of the drug;
- other potential advantages of alternative treatment methods; and
- ineffective marketing and distribution support of its products.

If any of our product candidates are approved, but fail to achieve market acceptance or such market is smaller than anticipated, we may not be able to generate significant revenue and our business would suffer.

As we evolve from a company that is primarily involved in clinical development to a company that is also involved in commercialization, we may encounter difficulties in expanding our operations successfully.

As we advance our product candidates through clinical trials, we will need to expand our development, regulatory, manufacturing, marketing and sales capabilities and may need to further contract with third parties to provide these capabilities. As our operations expand, we likely will need to manage additional relationships with such third parties, as well as additional collaborators, distributors, marketers and suppliers.

Maintaining third party relationships for these purposes will impose significant added responsibilities on members of our management and other personnel. We must be able to: manage our development efforts effectively; recruit and train sales and marketing personnel; manage our participation in the clinical trials in which our product candidates are involved effectively; and improve our managerial, development, operational and finance systems, all of which may impose a strain on our administrative and operational infrastructure.

If we enter into arrangements with third parties to perform sales, marketing or distribution services, any product revenues that we receive, or the profitability of these product revenues to us, are likely to be lower than if we were to market and sell any products that we develop without the involvement of these third parties. In addition, we may not be successful in entering into arrangements with third parties to sell and market our products or in doing so on terms that are favorable to us. We likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively. If we do not establish sales and marketing capabilities successfully, either on our own or in collaboration with third parties, we will not be successful in commercializing our products.

The uncertainty associated with pharmaceutical reimbursement and related matters may adversely affect our business.

Market acceptance and sales of any one or more of our product candidates will depend on reimbursement policies and may be affected by future healthcare reform measures in the United States and in foreign jurisdictions. Government authorities and third-party payers, such as private health insurers and health maintenance organizations, decide which drugs they will cover and establish payment levels. We cannot be certain that reimbursement will be available for any of our product candidates. Also, we cannot be certain that reimbursement policies will not reduce the demand for, or the price paid for, our products. If reimbursement is not available or is available on a limited basis, we may not be able to successfully commercialize any product candidates that we develop.

In the United States, the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, also called the Medicare Modernization Act, or MMA, changed the way Medicare covers and pays for pharmaceutical products. The legislation established Medicare Part D, which expanded Medicare coverage for outpatient prescription drug purchases by the elderly but provided authority for limiting the number of drugs that will be covered in any therapeutic class. The MMA also introduced a new reimbursement methodology based on average sales prices for physician-administered drugs.

The United States and several foreign jurisdictions are considering, or have already enacted, a number of legislative and regulatory proposals to change the healthcare system in ways that could affect our ability to sell our products profitably. Among policy makers and payers in the United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access to healthcare. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives. We expect to experience pricing pressures in connection with the sale of any products that it develops due to the trend toward managed healthcare, the increasing influence of health maintenance organizations and additional legislative proposals.

Moreover, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act, or collectively, ACA, is intended to reduce the cost of health care and substantially change the way health care is financed by both government and private insurers. While we cannot predict what impact on federal reimbursement policies this legislation will have in general or on our business specifically, the ACA may result in downward pressure on pharmaceutical reimbursement, which could negatively affect market acceptance of, and the price we charge for, any products we develop that receive regulatory approval.

Our ability to generate product revenues will be diminished if our therapies sell for inadequate prices or patients are unable to obtain adequate levels of reimbursement.

Our ability to commercialize our therapies, alone or with collaborators, will depend in part on the extent to which reimbursement will be available from private health maintenance organizations and health insurers and other healthcare payers. Significant uncertainty exists as to the reimbursement status of newly approved healthcare products. Healthcare payers are challenging the prices charged for medical products and services. Cost control initiatives could decrease the price that we would receive for any products in the future, which would limit our revenue and profitability. Government and other healthcare payers increasingly attempt to contain healthcare costs by limiting both coverage and the level of reimbursement for drugs and therapeutics. We might need to conduct post-marketing studies in order to demonstrate the cost-effectiveness of any future products to such payers' satisfaction. Such studies might require us to commit a significant amount of management time and financial and other resources. Our future products might not ultimately be considered cost-effective. Even if one of our product candidates is approved by the FDA, insurance coverage may not be available, and reimbursement levels may be inadequate, to cover such therapies. If government and other healthcare payers do not provide adequate coverage and reimbursement levels for one of our products, once approved, market acceptance of such product could be reduced.

We only have a limited number of employees to manage and operate our business.

We have a total of 24 full-time employees and two part-time employees. Our focus on limiting cash utilization requires us to manage and operate our business in a highly efficient manner. We cannot assure you that we will be able to retain adequate staffing levels to run our operations and/or to accomplish all of the objectives that we otherwise would seek to accomplish.

We depend heavily on our executive officers, directors, and principal consultants and the loss of their services would materially harm our business.

We believe that our success depends, and will likely continue to depend, upon our ability to retain the services of our current executive officers, directors, principal consultants and others. In addition, we have established relationships with universities, hospitals and research institutions, which have historically provided, and continue to provide, us with access to research laboratories, clinical trials, facilities and patients. The loss of the services of any of these individuals or institutions would have a material adverse effect on our business.

Our internal computer systems, or those of our third-party service providers, licensees, licensors, collaborators or other contractors or consultants, may fail or suffer security breaches, which could result in a material disruption in our business and operations.

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

Due in part to our limited financial resources, we may fail to select or capitalize on the most scientifically, clinically or commercially promising or profitable indications or therapeutic areas for our product candidates or those that are in-licensed, and/or we may be unable to pursue the clinical trials that we would like to pursue.

We have limited technical, managerial and financial resources to determine the indications on which we should focus the development efforts related to our product candidates. Due to our limited available financial resources, we may have curtailed clinical development programs and activities that might otherwise have led to more rapid progress of our product candidates through the regulatory and development processes.

We may make incorrect determinations with regard to the indications and clinical trials on which to focus the available resources that we do have. Furthermore, we cannot assure you that we will be able to retain adequate staffing levels to run our operations and/or to accomplish all of the objectives that we otherwise would seek to accomplish. Our decisions to allocate our research, management and financial resources toward particular indications or therapeutic areas for our product candidates may not lead to the development of viable commercial products and may divert resources from better opportunities. Similarly, our decisions to delay or terminate drug development programs may also cause us to miss valuable opportunities.

If the third parties on which we rely for the conduct of our clinical trials and results do not perform our clinical trial activities in accordance with good clinical practices and related regulatory requirements, we may be unable to obtain regulatory approval for or commercialize our product candidates.

We use independent clinical investigators and other third-party service providers to conduct and/or oversee the clinical trials of our product candidates and expect to continue to do so for the foreseeable future. We rely heavily on these parties for successful execution of our clinical trials. Nonetheless, we are responsible for confirming that each of our clinical trials is conducted in accordance with the FDA's requirements and our general investigational plan and protocol.

The FDA requires us and our clinical investigators to comply with regulations and standards, commonly referred to as good clinical practices, for conducting and recording and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the trial participants are adequately protected. Our reliance on third parties that we do not control does not relieve us of these responsibilities and requirements. Third parties may not complete activities on schedule or may not conduct our clinical trials in accordance with regulatory requirements or the respective trial plans and protocols. The failure of these third parties to carry out their obligations could delay or prevent the development, approval and commercialization of our product candidates or result in enforcement action against us.

We have limited manufacturing capacity and have relied on, and expect to continue to rely on, third-party manufacturers to produce our product candidates.

We do not own or operate manufacturing facilities for the production of clinical or commercial quantities of our product candidates, and we lack the resources and the capabilities to do so. As a result, we currently rely, and expect to rely for the foreseeable future, on third-party manufacturers to supply our product candidates. Reliance on third-party manufacturers entails risks to which we would not be subject if we manufactured our product candidates or products ourselves, including:

- reliance on third-parties for manufacturing process development, regulatory compliance and quality assurance;
- limitations on supply availability resulting from capacity and scheduling constraints of third-parties;
- the possible breach of manufacturing agreements by third-parties because of factors beyond our control; and
- the possible termination or non-renewal of the manufacturing agreements by the third-party, at a time that is costly or inconvenient to us.

If we do not maintain our key manufacturing relationships, we may fail to find replacement manufacturers or develop our own manufacturing capabilities, which could delay or impair our ability to obtain regulatory approval for our products and substantially increases our costs or deplete profit margins, if any. If we do find replacement manufacturers, we may not be able to enter into agreements with them on terms and conditions favorable to us and there could be a substantial delay before new facilities could be qualified and registered with the FDA and other foreign regulatory authorities.

The FDA and other foreign regulatory authorities require manufacturers to register manufacturing facilities. The FDA and corresponding foreign regulators also inspect these facilities to confirm compliance with current cGMPs. Contract manufacturers may face manufacturing or quality control problems causing drug substance production and shipment delays or a situation where the contractor may not be able to maintain compliance with the applicable cGMP requirements. Any failure to comply with cGMP requirements or other FDA, EMA and comparable foreign regulatory requirements could adversely affect our clinical research activities and our ability to develop our product candidates and market our products following approval.

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

It is difficult and costly to protect our proprietary rights, and we may not be able to ensure their protection.

We have been issued patents, applied for other patents, and intend on continuing to seek additional patent protection for our families of antibodies from our antibody development program, our vaccines, methods of use and other compounds that we discover. However, any or all of such compounds, methods or new uses of known compounds may not be subject to effective patent protection. Further, the development of regimens for the administration of our vaccines, which involve specifications for the frequency, timing and amount of dosages, has been, and we believe may continue to be, important to our efforts, although those processes, as such, may not be patentable. In addition, our issued patents may be declared invalid or our competitors may find ways to avoid the claims in the patents.

Our commercial success will depend, in part, on our ability to obtain and maintain patent protection, protect our trade secrets and operate without infringing on the proprietary rights of others. Our commercial success will also depend, in part, on our ability to market our product candidates during the term of our patent protection. For example, certain patents primarily in foreign countries within our portfolio expired in 2014 and can no longer be relied on for protection in those countries. As of February 28, 2017, we were the exclusive licensee, sole assignee or co-assignee of 14 granted United States patents, 2 pending United States patent applications, 7 international patents and 19 pending international patent applications. The patent position of pharmaceutical and biotechnology firms like us are generally highly uncertain and involves complex legal and factual questions, resulting in both an apparent inconsistency regarding the breadth of claims allowed in United States patents and general uncertainty as to their legal interpretation and enforceability. No absolute policy regarding the breadth of claims allowed in biopharmaceutical patents has emerged to date in the United States or in many foreign jurisdictions. Changes in either the patent laws or in interpretations of patent laws in the United States and foreign jurisdictions may diminish the value of our intellectual property. Accordingly, we cannot predict the breadth of claims that may be enforced in the patents that we currently own or that may be issued from the applications we have filed or may file in the future or that we have licensed or may license from third parties, including MSK for the vaccine antigen patents. Further, if any patents we obtain or license are deemed invalid or unenforceable, it could impact our ability to commercialize or license our technology. Thus, patent applications assigned or exclusively licensed to us may not result in patents being issued, any issued patents assigned or exclusively licensed to us may not provide us with competitive protection or may be challenged by others, and the current or future granted patents of others may have an adverse effect on our ability to do business and achieve profitability.

One of our issued US patents is directed to a candidate antibody product that will expire in 2034. Other previously filed antibody patent applications will, if issued, have patent expiration dates depending on country and filing date between 2034 and 2035. It is possible that the term of the antibody patent and certain patents issuing from the antibody patent applications may be extended for a portion of the time the candidate product was under regulatory review. Patents covering components of the sarcoma vaccine will expire in 2022. Patents covering the polyvalent ovarian vaccine will expire between 2018 and 2025. We believe that our product candidates are eligible for Orphan Drug designation from FDA depending on the indication for which it is approved by FDA. Each product that receives an Orphan Drug designation would be eligible for up to 7 additional years of patent protection.

The degree of future protection for our proprietary rights is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage. For example:

- others may be able to make compounds that are similar to our vaccines and monoclonal antibody-based candidates and any future product candidates we may seek to develop but that are not covered by the claims of our patents;
- if we encounter delays in our clinical trials, the period of time during which we could market our vaccines and monoclonal antibody-based candidates under patent protection would be reduced;
- we might not have been the first to conceive, make or disclose the inventions covered by our patents or pending patent applications;
- we might not have been the first to file patent applications for these inventions;
- any patents that we obtain may be invalid or unenforceable or otherwise may not provide us with any competitive advantages; or
- the patents of others may have a material adverse effect on our business.

Due to the patent laws of a country, or the decisions of a patent examiner in a country, or our own filing strategies, we may not obtain patent coverage for all of the product candidates that may be disclosed or methods involving these candidates that may be disclosed in the parent patent application. We plan to pursue divisional patent applications and/or continuation patent applications in the United States and many other countries to obtain claim coverage for inventions that were disclosed but not claimed in the parent patent application, but may not succeed in these efforts.

Composition of matter patents on the active biological component are generally considered to be the strongest form of intellectual property protection for biopharmaceutical products, as such patents generally provide protection without regard to any method of use. We cannot be certain that the claims in our patent applications covering composition-of-matter of our candidates will be considered patentable by the U.S. Patent and Trademark Office, or USPTO, courts in the United States or by the patent offices and courts in foreign countries. Method of use patents protect the use of a product for the method recited in the claims. This type of patent does not prevent a competitor from making and marketing a product that is identical to our product for an indication that is outside the scope of the patented method. Moreover, even if competitors do not actively promote their product for our targeted indications, physicians may prescribe these products “off-label.” Although off-label prescriptions may infringe or contribute to or induce the infringement of method of use patents, the practice is common and such infringement is difficult to prevent or prosecute. Interference proceedings provoked by third parties or brought by the USPTO may be necessary to determine the priority of inventions with respect to our patents or patent applications or those of our collaborators or licensors. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. Litigation or interference proceedings may fail, resulting in harm to our business, and, even if successful, may result in substantial costs and distract our management and other employees.

There have been numerous changes to the patent laws and proposed changes to the rules of the USPTO, which may have a significant impact on our ability to protect our technology and enforce our intellectual property rights. For example, in September 2011, President Obama signed the America Invents Act that codifies several significant changes to the U.S. patent laws, including, among other things, changing from a “first to invent” to a “first inventor to file” system, limiting where a patent holder may file a patent suit, replacing interference or “first to invent” proceedings with derivation proceedings and creating inter partes review and post-grant opposition proceedings to challenge the validity of patents after they have been issued. The effects of these changes are currently unclear as the USPTO only recently has adopted regulations implementing the changes, the courts have yet to address most of these provisions, and the applicability of the act and new regulations on specific patents and patent applications discussed herein have not been determined and would need to be reviewed.

Periodic maintenance fees on any issued patent are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of the patent. The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Noncompliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. In such an event, our competitors might be able to enter the market, which would have a material adverse effect on our business.

We also 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, licensees, licensors, outside scientific collaborators and other advisors may unintentionally or willfully disclose our information such that our competitors may obtain it. Enforcing a claim that a third party illegally obtained and is using any of our trade secrets is expensive and time consuming, and the outcome is unpredictable. Moreover, our competitors may independently develop equivalent knowledge, methods and know-how, such as new therapies, including therapies for the indications we are targeting. If others seek to develop similar therapies, their research and development efforts may inhibit our ability to conduct research in certain areas and to expand our intellectual property portfolio, and also have a material adverse effect on our business.

Moreover, because some of the basic research relating to one or more of our patent applications and/or patents were performed at various universities and/or funded by grants, one or more universities, employees of such universities and/or grantors could assert that they have certain rights in such research and any resulting products. Further, others may independently develop similar products, may duplicate our products, or may design around our patent rights. In addition, as a result of the assertion of rights by a third-party or otherwise, we may be required to obtain licenses to patents or other proprietary rights of others in or outside of the United States. Any licenses required under any such patents or proprietary rights may not be made available on terms acceptable to us, if at all. If we do not obtain such licenses, we could encounter delays in product market introductions during our attempts to design around such patents or could find that the development, manufacture or sale of products requiring such licenses is foreclosed. In addition, we could incur substantial costs in defending suits brought against us or in connection with patents to which we hold licenses or in bringing suit to protect our own patents against infringement.

We require employees and the institutions that perform our preclinical and clinical trials to enter into confidentiality agreements with us. Those agreements provide that all confidential information developed or made known to a party to any such agreement during the course of the relationship with us be kept confidential and not be disclosed to third-parties, except in specific circumstances. Any such agreement may not provide meaningful protection for our trade secrets or other confidential information in the event of unauthorized use or disclosure of such information.

With respect to our vaccine programs we have in-licensed rights from third parties. If these license agreements terminate or expire, we may lose the licensed rights to some or all of our vaccine product candidates. We may not be able to continue to develop them or, if they are approved, market or commercialize them.

We depend on license agreements with third-parties for certain intellectual property rights relating to our product candidates, including, but not limited to, the license of certain intellectual property rights from MSK. In general, our license agreements require us to make payments and satisfy performance obligations in order to keep these agreements in effect and retain our rights under them. These payment obligations can include upfront fees, maintenance fees, milestones, royalties, patent prosecution expenses, and other fees. These performance obligations typically include diligence obligations. If we fail to pay, be diligent or otherwise perform as required under our license agreements, we could lose the rights under the patents and other intellectual property rights covered by these agreements. If disputes arise under any of our license agreements, including our license agreement with MSK, we could lose our rights under these agreements. Any such dispute may not be resolvable on favorable terms, or at all. Whether or not any disputes of this kind are favorably resolved, our management's time and attention and our other resources could be consumed by the need to attend to these disputes and our business could be harmed by the emergence of such a dispute.

If we lose our rights under these agreements, we might not be able to develop any related product candidates further, or following regulatory approval, if any, we might be prohibited from marketing or commercializing these product candidates. In particular, patents previously licensed to us might, after termination of an agreement, be used to stop us from conducting these activities.

We are dependent on MSK for the establishment of our intellectual property rights related to the vaccine program, and if MSK has not established our intellectual property rights with sufficient scope to protect our vaccine candidates, we may have limited or no ability to assert intellectual property rights to our vaccine candidates.

Under our agreement with MSK, MSK was responsible for establishing the intellectual property rights to the vaccine antigen conjugates, mixtures of vaccine antigen conjugates that make up polyvalent vaccine candidates and methods of use. As we were not responsible for the establishment of our intellectual property rights to these vaccine antigen conjugates, mixtures of vaccine antigen conjugates and methods of use, we have less visibility into the strength of our intellectual property rights to our vaccine candidates than if we had been responsible for the establishment of these rights. If MSK did not establish those rights so they are of sufficient scope to protect the vaccine candidates, then we may not be able to prevent others from using or commercializing some or all of our vaccine candidates, and others may be able to assert intellectual property rights in our vaccine candidates and prevent us from further pursuing the development and commercialization of our vaccine candidates.

We may not obtain exclusive rights to intellectual property created as a result of our strategic collaborative agreements.

We are party to collaborative research agreements, such as with Rockefeller University and MSK, and expect to enter into agreements with other parties in the future, each of which involve research and development efforts. Under certain circumstances we may not have exclusive rights to jointly developed intellectual property and would have to license the collaborative partner's interest in the jointly developed intellectual property to obtain exclusive rights. We may not be able to license our collaborative partner's interest or license their interest at reasonable terms. If we are unable to license their interest we would not have exclusive rights to the jointly developed intellectual property and, in some collaborations, the collaborative partner may be free to license their interest in the jointly developed intellectual property to a competitor. In other collaborations, if we are unable to license the collaborative partner's interest we may not have sufficient rights to practice the jointly developed intellectual property. Such provisions to the jointly developed intellectual property may limit our ability to gain commercial benefit from some of or all of the intellectual property we jointly develop with our collaborative partners and may lead to costly or time-consuming disputes with parties with whom we have collaborative relationships over rights to certain innovations or with other third parties that may result from the activities of the collaborative arrangements.

We may incur substantial costs as a result of litigation or other proceedings relating to patent and other intellectual property rights and we may be unable to enforce or protect our rights to, or use, our technology.

If we choose to go to court to stop another party from using the inventions claimed in any patents we obtain, that individual or company has the right to ask the court to rule that such patents are invalid or should not be enforced. These lawsuits are expensive and would consume time and resources and divert the attention of managerial and scientific personnel even if we were successful in stopping the infringement of such patents or sustaining their validity and enforceability. In addition, there is a risk that the court will decide that such patents are not valid and that we do not have the right to enforce them. There is also the risk that, even if the validity of such patents is upheld, the court will refuse to stop the other party on the grounds that such other party's activities do not infringe such patents. In addition, the United States Court of Appeals for the Federal Circuit and the Supreme Court of the United States continue to address issues under the United States patent laws, and the decisions of those and other courts could adversely affect our ability to sustain the validity of our issued or licensed patents and obtain new patents.

Furthermore, a third party may claim that we or our manufacturing or commercialization partners or customers are using inventions covered by the third party's patent rights and may go to court to stop us or our partners and/or customers from engaging in our operations and activities, including making or selling our vaccine and monoclonal antibody-based candidates and any future product candidates we may seek to develop. These lawsuits are costly and could affect our results of operations and divert the attention of managerial and scientific personnel. There is a risk that a court would decide that we or our commercialization partners or customers are infringing the third party's patents and would order us or our partners or customers to stop the activities covered by the patents. In that event, we or our commercialization partners or customers may not have a viable way around the patent and may need to halt commercialization or use of the relevant product. In addition, there is a risk that a court will order us or our partners or customers to pay the other party damages for having violated the other party's patents or obtain one or more licenses from third parties, which may be impossible or require substantial time and expense. We cannot predict whether any license would be available at all or whether it would be available on commercially reasonable terms. Furthermore, even in the absence of litigation, we may need to obtain licenses from third parties to advance our research or allow commercialization of our candidates, and we have done so from time to time. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In such events, we would be unable to further develop and commercialize one or more of our drug candidates, which could harm our business significantly. In the future, we may agree to indemnify our commercial partners and/or customers against certain intellectual property infringement claims brought by third parties which could increase our financial expense, increase our involvement in litigation and/or otherwise materially adversely affect our business.

Because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation, which could adversely affect our intellectual property rights and our business. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock.

The pharmaceutical and biotechnology industries have produced a proliferation of patents, and it is not always clear to industry participants, including us, which patents cover various types of products or methods of use. The coverage of patents is subject to interpretation by the courts, and the interpretation is not always uniform. If we are sued for patent infringement, we would need to demonstrate that our products or methods either do not infringe the patent claims of the relevant patent or that the patent claims are invalid or unenforceable, and we may not be able to do this. Proving invalidity or unenforceability is difficult. For example, in the United States, proving invalidity requires a showing of clear and convincing evidence to overcome the presumption of validity enjoyed by issued patents.

Because some patent applications in the United States may be maintained in secrecy until the patents are issued, because patent applications in the United States and many foreign jurisdictions are typically not published until eighteen months after filing, because searches and examinations of patent applications by the USPTO and other patent offices may not be comprehensive, and because publications in the scientific literature often lag behind actual discoveries, we cannot be certain that others have not filed patent applications for technology covered by our patents or pending applications. Our competitors may have filed, and may in the future file, patent applications and may have obtained patents covering technology similar to ours. Any such patents or patent application may have priority over our patent applications, which could further require us to obtain or license rights to issued patents covering such technologies. If another party has obtained a U.S. patent or filed a U.S. patent application on inventions similar to ours, we may have to participate in a proceeding before the USPTO or in the courts to determine which patent or application has priority. The costs of these proceedings could be substantial, and it is possible that our application or patent could be determined not to have priority, which could adversely affect our intellectual property rights and business.

We have received confidential and proprietary information from collaborators, prospective licensees and other third parties. In addition, we employ individuals who were previously employed at other biotechnology or pharmaceutical companies. We may be subject to claims that we or our employees, consultants or independent contractors have improperly used or disclosed confidential information of these third parties or our employees' former employers. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial cost and be a distraction to our management and employees. If we are not successful, our ability to continue our operations and our business could be materially, adversely affected.

Some of our competitors may be able to sustain the costs of complex intellectual property litigation more effectively than we can because they have substantially greater resources. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our ability to raise the funds necessary to continue our operations, on our ability to hire or retain employees, or otherwise on our business.

If product liability lawsuits are successfully brought against us, we may incur substantial liabilities and may be required to limit commercialization of our product candidates and any products that we may develop.

The testing and marketing of medical products entail an inherent risk of product liability. Although we are not aware of any historical or anticipated product liability claims or specific causes for concern, if we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our product candidates and any products that we may develop. In addition, product liability claims may also result in withdrawal of clinical trial volunteers, injury to our reputation and decreased demand for any products that we may commercialize. We currently carry product liability insurance that covers our clinical trials up to a $5.0 million annual aggregate limit. We will need to increase the amount of coverage if and when we have a product that is commercially available. If we are unable to obtain sufficient product liability insurance at an acceptable cost, potential product liability claims could prevent or inhibit the commercialization of any products that we may develop, alone or with corporate partners.

Our restated certificate of incorporation, our amended and restated by-laws and Delaware law could deter a change of our management which could discourage or delay offers to acquire us; certain restrictions in our agreements with existing stockholders could also discourage or delay offers to acquire us.

Certain provisions of Delaware law and of our restated certificate of incorporation, as amended, and amended and restated by-laws, could discourage or make it more difficult to accomplish a proxy contest or other change in our management or the acquisition of control by a holder of a substantial amount of our voting stock. It is possible that these provisions could make it more difficult to accomplish, or could deter, transactions that stockholders may otherwise consider to be in their best interests or in our best interests. These provisions include:

- establishing a classified board of directors requiring that members of the board be elected in different years, which lengthens the time needed to elect a new majority of the board;
- authorizing the issuance of "blank check" preferred stock that could be issued by our board of directors to increase the number of outstanding shares or change the balance of voting control and thwart a takeover attempt;
- prohibiting cumulative voting in the election of directors, which would otherwise allow for less than a majority of stockholders to elect director candidates;
- limiting the ability of stockholders to call special meetings of the stockholders;
- prohibiting stockholder action by written consent and requiring all stockholder actions to be taken at a meeting of our stockholders; and
- establishing 90 to 120-day advance notice requirements for nominations for election to the board of directors and for proposing matters that can be acted upon by stockholders at stockholder meetings.

Additionally, we granted certain rights to approve future (i) issuances of our securities, (ii) equity or debt financings and (iii) sales of any development product assets currently held by us, subject to certain exceptions, for as long as any lead investor in the August 2016 Public Offering holds 50% or more of the shares of common stock (or Series F Preferred Stock) purchased by a lead investor in the August 2016 Public Offering or until a financing with net proceeds to us of at least $7.5 million in which we are able to sell our securities at a minimum per share price of $7.40 or greater. There can be no assurance that such lead investor will provide consent, and this requirement may make it difficult for us to raise capital, refinance indebtedness or borrow additional funds.

Unless our common stock is listed on The NASDAQ Capital Market or other national securities exchange, it will be deemed a "penny stock," which would make it more difficult for our investors to sell their shares.

On August 17, 2016, we began trading on The NASDAQ Capital Market. If we fail to maintain our listing on The NASDAQ Capital Market or other national securities exchange, our common stock will be subject to the "penny stock" rules adopted under Section 15(g) of the Exchange Act. The penny stock rules generally apply to companies whose common stock is not listed on the NASDAQ Capital Market or other national securities exchange and trades at less than $4.00 per share, other than companies that have had average revenue of at least $6,000,000 for the last three years or that have tangible net worth of at least $5,000,000 ($2,000,000 if the company has been operating for three or more years). These rules require, among other things, that brokers who trade penny stock to persons other than "established customers" complete certain documentation, make suitability inquiries of investors and provide investors with certain information concerning trading in the security, including a risk disclosure document and quote information under certain circumstances. Many brokers have decided not to trade penny stocks because of the requirements of the penny stock rules and, as a result, the number of broker-dealers willing to act as market makers in such securities is limited. If we remain subject to the penny stock rules for any significant period, it could have an adverse effect on the market, if any, for our securities. If our securities are subject to the penny stock rules, investors will find it more difficult to dispose of our securities.

Substantial future sales of our common stock by us or by our existing stockholders could cause our stock price to fall.

Additional equity financings or other share issuances by us, including shares issued in connection with strategic alliances and corporate partnering transactions, could adversely affect the market price of our common stock. Sales by existing stockholders of a large number of shares of our common stock in the public market or the perception that additional sales could occur could cause the market price of our common stock to drop.

The price of our common stock is volatile, and is likely to continue to fluctuate due to reasons beyond our control.

The market price of our common stock has been, and likely will continue to be, highly volatile. Factors, including our financial results or our competitors' financial results, clinical trial and research development announcements and government regulatory action affecting our potential products in both the United States and foreign countries, have had, and may continue to have, a significant effect on our results of operations and on the market price of our common stock. We cannot assure you that any investment in our common stock will not fluctuate significantly. One or more of these factors could significantly harm our business and cause a decline in the price of our common stock in the public market. Sales of shares of common stock registered for resale or eligible for resale pursuant to Rule 144 under the Securities Act as amended, as well as future sales of our common stock by existing stockholders, or the perception that sales may occur at any time, could adversely affect the market price of our common stock.

If we do not progress in our programs as anticipated, our stock price could decrease.

For planning purposes, we estimate the timing of a variety of clinical, regulatory and other milestones, such as when a certain product candidate will enter clinical development, when a clinical trial will be completed or when an application for regulatory approval will be filed. Our estimates are based on present facts and a variety of assumptions. Many of the underlying assumptions are outside of our control. If milestones are not achieved when we estimated that they would be, investors could be disappointed, and our stock price may decrease.

Our stock price may be volatile; you may not be able to resell your shares at or above your purchase price.

Our stock prices and the market prices for securities of biotechnology companies in general have been highly volatile, with recent significant price and volume fluctuations, and may continue to be highly volatile in the future. For example, during the year ended December 31, 2016, our common stock traded between $3.03 per share and $6.51 per share. The following factors, in addition to other risk factors described in this section, may have a significant impact on the market price of our common stock, some of which are beyond our control:

- developments regarding, or the results of, our clinical trials;
- announcements of technological innovations or new commercial products by our competitors or us;
- our issuance of equity or debt securities, or disclosure or announcements relating thereto;
- developments concerning proprietary rights, including patents;
- developments concerning our collaborations;
- publicity regarding actual or potential medical results relating to products under development by our competitors or us;
- regulatory developments in the United States and foreign countries;
- litigation;
- economic and other external factors or other disaster or crisis; or
- period-to-period fluctuations in our financial results.

We have been, and in the future may be, subject to securities class action lawsuits and shareholder derivative actions. These, and potential similar or related litigation, could result in substantial damages and may divert management's time and attention from our business.

We have been, and may in the future be, the target of securities class actions or shareholder derivative claims. Any such actions or claims could result in substantial damages and may divert management's time and attention from our business.

The rights of our common stockholders are limited by and subordinate to the rights of the holders of Series D Preferred Stock, Series E Preferred Stock and Series F Preferred Stock; these rights may have a negative effect on the value of shares of our common stock.

The holders of our Series D Preferred Stock, Series E Preferred Stock and Series F Preferred Stock have rights and preferences generally superior to those of the holders of common stock. The existence of these superior rights and preferences may have a negative effect on the value of shares of our common stock. These rights are more fully set forth in the Series D certificate of designations, Series E Preferred Stock certificate of designations and Series F Preferred Stock certificate of designations, respectively, and include, but are not limited to the right to receive a liquidation preference, prior to any distribution of our assets to the holders of our common stock, in an amount equal to $0.01 per share or $1,325 for the Series D Preferred Stock, $0.01 per share or $333 for the Series E Preferred Stock and $0.01 per share or $6,653 for the Series F Preferred Stock.

A limited public trading market may cause volatility in the price of our common stock.

On August 17, 2016, we began trading on The NASDAQ Capital Market. If we fail to maintain the listing of our common stock on The NASDAQ Capital Market, our common stock will be quoted on the OTCQB marketplace. The quotation of our common stock on the OTCQB marketplace does not assure that a meaningful, consistent and liquid trading market currently exists, and in recent years such market has experienced extreme price and volume fluctuations that have particularly affected the market prices of many smaller companies like us. Our common stock is subject to this volatility. Sales of substantial amounts of common stock, or the perception that such sales might occur, could adversely affect prevailing market prices of our common stock and our stock price may decline substantially in a short time and our stockholders could suffer losses or be unable to liquidate their holdings. If our common stock does not trade on a national securities exchange in the future, our common stock will be subject to the securities laws of the various states and jurisdictions of the United States in addition to federal securities law. While we may register our common stock or qualify for exemptions for our common stock in one of more states, if we fail to do so the investors in those states where we have not taken such steps may not be allowed to purchase our stock or those who presently hold our stock may not be able to resell their shares without substantial effort and expense. These restrictions and potential costs could be significant burdens on our stockholders.

The number of shares of issued and outstanding common stock represents approximately 39% of our fully diluted shares of common stock. Additional issuances of shares of common stock upon conversion and/or exercise of preferred stock, options to purchase common stock and warrants to purchase common stock will cause substantial dilution to existing stockholders.

At February 28, 2017, we had 6,296,110 shares of common stock issued and outstanding. Up to an additional 2,975,424 shares may be issued upon conversion of our Series D Preferred Stock, Series E Preferred Stock and Series F Preferred Stock; 5,125,391 shares issuable upon exercise of warrants at a weighted average price of $6.84; 1,587,971 shares upon exercise of all outstanding options to purchase our common stock at a weighted average price of $7.29; and 205,478 shares issuable upon vesting of restricted stock units granted, resulting in a total of up to 16,190,374 shares that may be issued and outstanding. The issuance of any and all of the 9,894,264 shares issuable upon exercise or conversion of our outstanding convertible securities will cause substantial dilution to existing stockholders and may depress the market price of our common stock.

You may experience future dilution in the event of future equity offerings

We may in the future offer shares of our common stock or other securities convertible into or exchangeable for our common stock. Although no assurances can be given that we will consummate a financing, in the event we do, or in the event we sell shares of common stock or other securities convertible into shares of our common stock in the future, additional and substantial dilution will occur. In addition, investors purchasing shares or other securities in the future could have rights superior to our current shareholders.

Item 1B.Unresolved Staff Comments.

None

Item 2. Properties.

In September 2015 we entered into a lease agreement with AGP Sorrento Business Complex, L.P. (the "Lease") for a lease of approximately 14,971 rentable square feet of office and research facilities located at 11535 Sorrento Valley Road, San Diego, California 92121 to serve as our corporate offices and laboratories. Due to the fact that certain tenant improvements needed to be made to the premises before we could take occupancy, the facilities were not ready until early 2016. We moved from our previous facility at 11588 Sorrento Valley Road, into our new space in early February 2016. Monthly rent commenced upon occupancy at $2.38 per square foot, totaling $35,631, and will escalate at an annual rate of 3% a year over the six-year term of the lease as set forth in the Lease.

Item 3. Legal Proceedings.

None

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.

Our common stock trades on the NASDAQ Capital Market under the symbol "MBVX". The following table sets forth the high and low sales prices for our common stock for each quarterly period within the two most recent fiscal years. All stock prices included in the following table are adjusted for the 1 for 7.4 reverse stock split which occurred on August 16, 2016.

	High	Low
2016		
Quarter ended March 31, 2016	$ 6.51	$ 3.03
Quarter ended June 30, 2016	$ 6.44	$ 3.48
Quarter ended September 30, 2016	$ 6.05	$ 3.63
Quarter ended December 31, 2016	$ 4.50	$ 3.10
2015		
Quarter ended March 31, 2015	$ 19.76	$ 6.14
Quarter ended June 30, 2015	$ 36.56	$ 13.32
Quarter ended September 30, 2015	$ 20.87	$ 7.77
Quarter ended December 31, 2015	$ 8.29	$ 4.51

Holders

There are approximately 92 stockholders of record of our common stock, one of which is Cede & Co., a nominee for Depository Trust Company, or DTC. Shares of common stock that are held by financial institutions as nominees for beneficial owners are deposited into participant accounts at DTC, and are considered to be held of record by Cede & Co. as one stockholder.

Dividends

We have never paid our stockholders cash dividends, and we do not anticipate paying any cash dividends in the foreseeable future as we intend to retain any earnings for use in our business. Any future determination to pay dividends will be at the discretion of our board of directors.

Securities Authorized for Issuance under Equity Compensation Plans

The following table provides certain information with respect to all of the Company's equity compensation plans in effect as of December 31, 2016.

Plan Category	(a) Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights	(b) Weighted-average Exercise Price of Outstanding Options, Warrants and Rights	(c) Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a)
Equity compensation plans approved by security holders	851,376	$ 10.94	66,693
Equity compensation plans not approved by security holders	—	N/A	—
Total	851,376		66,693

Item 6. Selected Financial Data.

The information under this Item is not required to be provided by smaller reporting companies.

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

You should read the following discussion and analysis in conjunction with "Item 8. Financial Statements and Supplementary Data" included in this Annual Report on Form 10-K, or Annual Report. Operating results are not necessarily indicative of results that may occur in future periods.

This discussion and analysis contains forward-looking statements that involve a number of risks, uncertainties and assumptions. Actual events or results may differ materially from our expectations. Important factors that could cause actual results to differ materially from those stated or implied by our forward-looking statements include, but are not limited to, those set forth in "Item 1A. Risk Factors" in this Annual Report. All forward-looking statements included in this Annual Report are based on information available to us as of the time we file this Annual Report and, except as required by law, we undertake no obligation to update publicly or revise any forward-looking statements.

Overview

We have been engaged in the discovery and development of proprietary human monoclonal antibody products for the diagnosis and treatment of a variety of cancers. We have discovered a pipeline of human monoclonal antibody products based on the protective immune responses generated by patients who have been immunized against targeted cancers. Therapeutic vaccines under development were discovered at Memorial Sloan Kettering Cancer Center, or MSK, and are exclusively licensed to MabVax Therapeutics. We operate in only one business segment. We have incurred substantial losses since inception, and we expect to incur additional substantial losses for the foreseeable future as we continue our research and development activities. To date, we have funded our operations primarily through government grants, proceeds from the sale of common and preferred stock, the issuance of debt, the issuance of common stock in lieu of cash for services, payments from collaborators and interest income. The process of developing our product candidates will require significant additional research and development, preclinical testing and clinical trials, as well as regulatory approval. We expect these activities, together with general and administrative expenses, to result in substantial operating losses for the foreseeable future. We will not receive product revenue unless we, or our collaborative partners, complete clinical trials, obtain regulatory approval and successfully commercialize one or more of our products. We cannot provide assurance that we will ever generate revenues or achieve and sustain profitability in the future or obtain the necessary working capital for our operations.

During the year ended December 31, 2016, our loss from operations was $16,663,119 and our net loss was $17,660,483. Net cash used in operating activities for the year ended December 31, 2016 was $12,363,411 and cash and cash equivalents at December 31, 2016 were $3,979,290. As of December 31, 2016, we had an accumulated deficit of $78,262,261.

We are subject to risks common to biopharmaceutical companies, including the need for capital, risks inherent in our research, development and commercialization efforts, preclinical testing, clinical trials, uncertainty of regulatory and marketing approvals, enforcement of patent and proprietary rights, potential competition and retention of key employees. In order for a product to be commercialized, it will be necessary for us to conduct preclinical tests and clinical trials, demonstrate efficacy and safety of our product candidates to the satisfaction of regulatory authorities, obtain marketing approval, enter into manufacturing, distribution and marketing arrangements, obtain market acceptance and, in many cases, obtain adequate reimbursement from government and private insurers. We cannot provide assurance that we will ever generate revenues or achieve and sustain profitability in the future or obtain the necessary working capital for our operations.

Reverse Stock Split and Listing on NASDAQ

On August 16, 2016, we filed a certificate of amendment to our Amended and Restated Certificate of Incorporation with the Secretary of State of the State of Delaware in order to effectuate a reverse stock split of our issued and outstanding common stock on a 1 for 7.4 basis, effective on August 16, 2016 (the "Reverse Stock Split"). The Reverse Stock Split was effective with The Financial Industry Regulatory Authority (FINRA), and the Company's common stock began trading on The NASDAQ Capital Market at the open of business on August 17, 2016. All share and per share amounts, and number of shares of common stock into which each share of preferred stock will convert, in the financial statements and notes thereto have been retroactively adjusted for all periods presented to give effect to the Reverse Stock Split, including reclassifying an amount equal to the reduction in par value of common stock to additional paid-in capital.

Clinical Product Development – Recent Updates

MVT-5873 Interim Phase I Data in Pancreatic Cancer – The MVT-5873 phase I clinical trial initiated in February 2016 is designed to establish safety and tolerability, and to determine the recommended phase II dose (RP2D) for MVT-5873 both as monotherapy in patients with locally advanced or metastatic adenocarcinoma of the pancreas (PDAC) and other CA19-9 positive malignancies. Initiation of Part 2 required establishing three safe dose levels for MVT-5873 as monotherapy in patients with relapsed or refractory locally advanced or metastatic pancreatic cancer. In November 2016 the Company reported that the safety of MVT-5873 had been established at three incremental dose levels by treating 16 patients at three clinical sites. While patients continue to be recruited to establish the RP2D, the Company also initiated Part 2 of the clinical trial to include patients with previously untreated pancreatic cancer receiving a standard of care chemotherapy as defined in the protocol.

MVT-2163 Interim Phase I Data in Pancreatic Cancer – The MVT-2163 phase I trial initiated in June 2016 is designed to evaluate a next generation diagnostic PET imaging agent in patients with locally advanced or metastatic adenocarcinoma of the pancreas (PDAC) and other CA19-9 positive malignancies. MVT-2163 (89Zr-HuMab-5B1) combines the well-established PET imaging radiolabel Zirconium [89Zr] with the targeting specificity of MVT-5873. This trial is designed to establish safety, pharmacokinetics, biodistribution, and the amount of MVT-5873 to be used in co-administration to obtain optimized PET scan images. In November 2016 we reported that the trial had demonstrated interim safety, pharmacokinetics, and biodistribution by completing the initial two cohorts of patients: the first cohort administered MVT-2163 alone and the second cohort administered MVT-2163 following a blocking dose of MVT-5873. We also reported that the initial PET images demonstrated target specificity by correlation with lesions identified by conventional computerized tomography (CT) scans. The biodistribution data obtained in the first two cohorts demonstrates improvement in PET images by pre-administration of MVT-5873, as has been observed with other antibody based PET agents. We continue to recruit patients and expect to establish the optimal co-administration dose of MVT-5873 early in 2017.

MVT-1075 Phase I Clinical Trial Status – On January 7, 2017, we announced that we had filed an Investigational New Drug, or IND application with the FDA for MVT-1075 (177Lu-CHX-A″-DTPA-HuMab5B1), our novel fully human antibody radioimmunotherapy, or RIT, product candidate. In February 2017 we announced that we had the FDA's authorization to proceed with initiation of our clinical trials. Our phase I clinical trial will be in patients with histologically confirmed, previously treated, locally-advanced or metastatic CA19-9 positive adenocarcinoma of the pancreas, or PDAC, or other CA19-9 positive malignancies. We expect to begin enrolling patients in the first half of 2017. This is the third IND filed by us that builds on the tumor targeting characteristics of the HuMab-5B1 antibody discovered from immune responses of cancer patients vaccinated with the Company's proprietary cancer vaccines.

The MVT-1075 RIT agent combines the targeting specificity of the HuMab-5B1 antibody for an antigen overexpressed on pancreatic cancer and other CA19-9 positive cancers with 177 Lutetium to target delivery of therapeutic radiation to cancer cells. Preclinical studies have demonstrated marked suppression and in some instances regression in xenograft animal models of pancreatic cancer, potentially making it an important new therapeutic agent in the treatment of pancreatic cancer and other cancers expressing the same antigen, CA19-9.

In this initial phase I trial we plan to evaluate the safety, dosimetry, and pharmacokinetics of MVT-1075. Patients enrolled in the study will have been diagnosed with recurrent locally advanced or metastatic pancreatic ductal adenocarcinoma (PDAC) or other CA19-9 positive malignancies. Patient disease status will be evaluated based on tumor measurements using RECIST 1.1 measurement criteria. The investigative sites will include MSK in New York City.

Historical Information on Work Conducted on Cancer Vaccines – From 2010 to 2015 we and our collaborative partners were engaged in enrolling patients in two phase II multi-center clinical trials of cancer vaccines that targeted recurrent sarcoma (soft tissue cancer) and ovarian cancer. In 2015 all vaccinations in the two studies had been completed, and since then, we and are partners have been engaged in the monitoring of patients to assess overall survival, or OS. Both the sarcoma and ovarian cancer vaccine trials were randomized, double-blind, multicenter phase II trials that had enrolled 136 and 164 patients respectively. Both trials were designed to yield statistically significant evidence that vaccination of trial subjects can provide 50% improvement in progression free survival, or PFS, and extend OS. We and our collaboration partners in these studies are no longer performing significant work on these studies other than to monitor patients for OS.

An independent Drug Safety and Monitoring Board, or DSMB, composed of experts in the field analyzed the sarcoma clinical trial data in March of 2013 and determined that the PFS endpoint of a 50% increase in the time to progression was not reached. At the suggestion of the DSMB we have continued to monitor patients for OS and plan to issue a final report on our findings in 2017. The National Institutes of Health, or NIH, approved a grant of $1.75 million that we received in progress payments between 2014 and 2016 to help offset the clinical trial costs for the sarcoma trial. We have no plan at this time to engage in additional clinical studies for this vaccine.

At the American Society of Clinical Oncology meeting in June 2016 the sponsors of the Phase II trial in ovarian cancer, the Gynecologic Oncology Group, or GOG, a consortium of clinical trial investigators and sites working in collaboration with the NCI, reported that the primary endpoint of improvement in PFS was not reached. We suggested that the GOG continue to monitor the trial subjects in the ovarian cancer vaccine trial for OS. The ovarian vaccine trial has been fully funded by a grant from the NIH. We have no financial obligation for this trial or the follow-on monitoring. If the OS endpoint were to be achieved, we would pursue out-licensing the product. We have no plan at this time to engage in additional clinical studies for this vaccine.

Results of Operations

Revenues

Revenues for the years ended December 31, 2016 and 2015 were $148,054 and $1,267,036, respectively, primarily from grant revenues. This decrease was primarily due to the completion of the current phase of our contract with the National Institutes of Health, or NIH (the "NIH Imaging Contract"), during the first quarter of 2016.

	Years Ended December 31,		% change
	2016	2015	2015 to 2016
Revenues	$ 148,054	$ 1,267,036	(88)%

Future revenues will depend upon the extent to which we obtain approval of new grants or enter into new collaborative research agreements and the amounts of payments relating to such agreements.

Research and Development Expenses

Research and development expenses for the years ended December 31, 2016 and 2015 were $7,800,723 and $9,596,768, respectively. Our research and development costs consist primarily of clinical trial site costs, clinical data management and statistical analysis support, drug manufacture, storage and distribution, regulatory services and other outside services related to drug development.

	Years Ended December 31,		% change
	2016	2015	2015 to 2016
Research and development	$ 7,800,723	$ 9,596,768	(19)%

Total research and development expenses for the year ended December 31, 2016 decreased by 19%, or $1,796,045, compared to the same period in 2015. Expenses for the year ended December 31, 2016 were primarily for our clinical trials, and in-house staffing to support preclinical and clinical development efforts in support of our programs. Expenses in the same period a year ago were primarily for GMP manufacturing development of our lead antibody candidate HuMab 5B1 at Patheon (f.k.a. Gallus BioPharmaceuticals). In addition, during the current quarter the Company negotiated a release of approximately $363,000 of previously accrued manufacturing costs related to failed manufacturing batches.

Stock-based compensation expense included in research and development expenses for the years ended December 31, 2016 and 2015 were $1,192,126 and $929,633, respectively.

We expect our total research and development expenditures in the next twelve months to increase as we continue to fund the clinical studies of MVT-5873 and MVT-2163 and begin clinical trials in MVT-1075 in 2017. In the event we are unable to obtain sufficient funding for clinical development of our therapies, we will need to defer completion of clinical trials until such funding is in place. If we are unable to obtain additional funding for our trials to complete clinical development, our total research and development expenditures will decrease substantially until the additional funding is raised.

The process of conducting the clinical research necessary to obtain FDA approval is costly and time consuming. Current FDA requirements for a new human drug to be marketed in the United States include:

- the successful conclusion of preclinical laboratory and animal tests, if appropriate, to gain preliminary information on the product's safety;
- filing with the FDA of an IND, to conduct initial human clinical trials for drug candidates;
- the successful completion of adequate and well-controlled human clinical trials to establish the safety and efficacy of the product candidate; and
- filing by the Company and acceptance and approval by the FDA of an NDA for a product candidate to allow commercial distribution of the drug, which is beyond the scope of our financial resources. We intend on licensing or selling the technology prior to filing an NDA.

We consider the active management and development of our clinical pipeline to be crucial to our long-term success. The actual probability of success for each product candidate and clinical program may be impacted by a variety of factors, including, among others, the quality of the candidate, the validity of the target and disease indication, early clinical data, investment in the program, competition, manufacturing capability and commercial viability. Due to these and other factors, it is difficult to give accurate guidance on the anticipated proportion of our research and development investments or the future cash inflows from these programs.

General and Administrative Expenses

General and administrative expenses for the years ended December 31, 2016 and 2015 were $9,010,450 and $9,795,163, respectively.

	Years Ended December 31,		% change
	2016	2015	2015 to 2016
General and administrative	$ 9,010,450	$ 9,795,163	(8)%

The decrease in general and administrative expenses of 8%, or $784,713 in 2016, compared to the same period in 2015, was primarily due to decreases of approximately $1,614,000 in business development expenses primarily related to restricted stock grants to consultants for services and approximately $915,000 in investor relations expenses primarily related to restricted stock grants to outside consultants, partially offset by increases of approximately $516,000 in facility expenses associated with the larger space starting in February 2016, approximately $797,000 in stock based compensation costs, and approximately $392,000 in salaries and wages primarily related to additional headcount in business development.

Stock-based compensation expense included in general and administrative expenses for the years ended December 31, 2016 and 2015 was $3,211,152 and $3,534,062, respectively. Stock-based compensation expense for the year ended December 31, 2016 included $592,329 in restricted stock for services.

We expect future general and administrative expenses to stay relatively stable in 2017.

Interest Income and Interest Expense

	Years Ended December 31,		% change
	2016	2015	2015 to 2016
Interest and other income (expense), net	$ (997,364)	$ (227)	*%

*Not meaningful

Interest and other income and expense, net was $997,364 and $227 for the years ended December 31, 2016 and 2015, respectively. Expenses in 2016 consisted primarily of $603,875 interest expense related to interest on the Company's term loan from Oxford Finance LLC, $174,475 of financing cost amortization, and $219,039 of warrant amortization partially offset by interest income of $25.

The fair value of the warrants issued to Oxford Finance LLC related to the term loan was recorded as a discount to the value of the note payable, and is amortized over the term of the loan. In addition, financing costs incurred related to the term loan are amortized over the term of the loan.

Warrant Liability

Change in fair value of warrant liability for the year ended December 31, 2016 and 2015 was $0 and $19,807, respectively. The decrease was mainly due to the restructuring the Company's capital structure resulting in the elimination of the warrant liability as of December 31, 2015. We calculate the value of our warrant liability on a quarterly basis, or when other events and circumstances occur, using the Black-Scholes-Merton valuation model.

Critical Accounting Policies and Significant Judgments and Estimates

Our management's discussion and analysis of our financial condition and results of operations are based on our consolidated financial statements, which have been prepared in accordance with GAAP. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the consolidated financial statements as well as the reported revenues and expenses during the reporting periods. On an on-going basis, we evaluate our estimates and judgments related to our operating costs. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ significantly from these estimates under different assumptions or conditions.

Our critical accounting policies include:

Revenue recognition. Revenue from grants is based upon internal and subcontractor costs incurred that are specifically covered by the grant, including a facilities and administrative rate that provides funding for overhead expenses. NIH grants are recognized when MabVax Therapeutics incurs internal expenses that are specifically related to each grant, in clinical trials at the clinical trial sites, by subcontractors who manage the clinical trials, and provided the grant has been approved for payment. U.S. grant awards are based upon internal research and development costs incurred that are specifically covered by the grant, and revenues are recognized when MabVax Therapeutics incurs internal expenses that are related to the approved grant.

Any amounts received by MabVax Therapeutics pursuant to the NIH grants prior to satisfying our revenue recognition criteria are recorded as deferred revenue.

Clinical trial expenses. We accrue clinical trial expenses based on work performed. In determining the amount to accrue, we rely on estimates of total costs incurred based on the enrollment of subjects, the completion of trials and other events defined in contracts. We follow this method because we believe reasonably dependable estimates of the costs applicable to various stages of a clinical trial can be made. However, the actual costs and timing of clinical trials are highly uncertain, subject to risks, and may change depending on a number of factors. Differences between the actual clinical trial costs and the estimated clinical trial costs that we have accrued in any prior period are recognized in the subsequent period in which the actual costs become known. Historically, these differences have not been material; however, material differences could occur in the future.

Stock-based compensation. Our stock-based compensation programs include grants of stock options and restricted stock to employees, non-employee directors and non-employee consultants. Stock-based compensation cost is measured at the grant date, based on the calculated fair value of the award, and is recognized as an expense, under the straight-line method, over the employee, non-employee director or non-employee consultant's requisite service period (generally the vesting period of the equity grant).

We account for equity instruments, including stock options and restricted stock, issued to employees and non-employees in accordance with authoritative guidance for equity based payments. Stock options issued are accounted for at their estimated fair value determined using the Black-Scholes-Merton option-pricing model and restricted stock is accounted for using the grant date fair value of our common stock granted. The fair value of options and restricted stock granted to non-employees is re-measured as they vest, and the resulting increase in value, if any, is recognized as expense during the period the related services are rendered.

Warrant liability. We calculate the value of our warrant liability on a quarterly basis, or when other events and circumstances occur, using as a first step the Black-Scholes-Merton valuation model, taking into consideration the warrant exercise price, the probability of certain exercise price re-pricing scenarios, the market price for the common stock on the date of measurement, the risk-free interest rate, the dividend yield, the volatility of a comparable period in which the warrant may be exercised, and the remaining life of the warrant, and then as a second step we test our valuation for reasonableness based on settlement offers we have received from the holder of the warrant. If the settlement offer is within a reasonable period of time from when we do our calculation, and is not materially different from the value we recorded using the Black-Scholes-Merton model, then we retain the value established with our model. If the settlement offer were to reflect a materially different amount near the date of our calculation, then we would record the settlement offer.

Income taxes. Significant judgment is required by management to determine our provision for income taxes, our deferred tax assets and liabilities, and the valuation allowance to record against our net deferred tax assets, which are based on complex and evolving tax regulations throughout the world. Our tax calculation is impacted by tax rates in the jurisdictions in which we are subject to tax and the relative amount of income earned in each jurisdiction. Our deferred tax assets and liabilities are determined using the enacted tax rates expected to be in effect for the years in which those tax assets are expected to be realized.

The effect of an uncertain income tax position is recognized as the largest amount that is "more-likely-than-not" to be sustained under audit by the taxing authority. An uncertain income tax position will not be recognized if it has less than a 50% likelihood of being sustained.

The realization of our deferred tax assets is dependent upon our ability to generate sufficient future taxable income. We establish a valuation allowance when it is more-likely-than-not that the future realization of all or some of the deferred tax assets will not be achieved. The evaluation of the need for a valuation allowance is performed on a jurisdiction-by-jurisdiction basis, and includes a review of all available evidence, both positive and negative. As of December 31, 2016, MabVax Therapeutics concluded that it was more-likely-than-not that its deferred tax assets would not be realized, and a full valuation allowance has been recorded.

Liquidity and Capital Resources

From inception to December 31, 2016, we have financed our operations principally through net proceeds received from private equity and preferred stock financings, debt financings, and grants through the NIH and SBIR programs. We have experienced negative cash flows from operations each year since our inception. As of December 31, 2016, we had an accumulated deficit of $78,262,261. We expect to continue to incur increased expenses, resulting in losses, over at least the next several years due to, among other factors, our continuing and planned clinical trials and anticipated research and development activities.

	2016	2015
December 31:		
Cash and cash equivalents	$ 3,979,290	$ 4,084,085
Working capital/(deficit)	$ (1,396,656)	$ 350,621
Current ratio	0.75:1	1.07:1

December 31:		
Cash provided by (used in):		
Operating activities	$(12,363,411)	$(10,525,182)
Investing activities	$ (563,196)	$ (78,416)
Financing activities	$ 12,821,812	$ 13,210,540

Sources and Uses of Cash

Due to the significant research and development expenditures and the lack of any approved products to generate revenue, we have not been profitable and have generated operating losses since we incorporated in 1988. As such, we have funded our research and development operations through government grants and contracts, sales of equity, debt, collaborative arrangements with corporate partners, and interest earned on investments. At December 31, 2016, we had available cash and cash equivalents of $3,979,290. Our cash and cash equivalents balances are held primarily in checking accounts. Cash in excess of immediate requirements is invested with regard to liquidity and capital preservation. Wherever possible, we seek to minimize the potential effects of concentration and degrees of risk.

Cash Flows from Operating Activities. Cash used in operating activities for 2016 was $12,363,411 compared to $10,525,182 for the same period in 2015. Net loss of $17,660,483 in 2016 included non-cash charges of $4,403,278 for stock-based compensation and $96,553 in depreciation and amortization. Cash used in 2015 resulted from a net loss of $18,105,315 and included non-cash charges of $4,463,695 for stock-based compensation and $21,360 in depreciation, partially offset by a $19,807 reduction in fair value of the Series B warrants.

Cash Flows from Investing Activities. Cash used in investing activities for 2016 was $563,196 compared to $78,416 during the same period in 2015. Cash used in both 2016 and 2015 was primarily used to purchase property and equipment.

Cash Flows from Financing Activities. Cash provided by financing activities for 2016 was $12,821,812 compared to $13,210,540 provided in 2015. Cash provided by financing activities in 2016 included $4,610,324 from net proceeds from the January 2016 Oxford Finance LLC Term Loan and $8,567,448 from sale of common stock and warrants in a registered offering completed in August 2016. Cash provided by financing activities in 2015 included $10,709,740 from net proceeds from the sale of common stock and warrants in a private placement completed in April 2015, as well as a public offering completed in October 2015 for $2,750,000.

Working Capital. Working capital decreased to a working capital deficit of $1,396,656 at December 31, 2016 compared to a working capital surplus of $350,621 at December 31, 2015. The decrease in working capital was primarily due to increased capital usage during 2016 primarily related to the company's clinical development programs.

We believe our cash and cash equivalents as of December 31, 2016 will be sufficient to fund our projected operating requirements through approximately April 2017. In order to continue our current and future operations and continue our clinical product development programs through 2017, we will depend on our ability to obtain additional funding in a timely manner or if at all. We are uncertain about our ability to raise sufficient funds to continue our existing operations after April 2017. We continue to explore alternatives that could include partnerships involving one or more of our product candidates, licensing arrangements with one or more of our product development candidates, merger with or acquisition by another company, or some other arrangement through which the value of our assets to stockholders could be enhanced. We may raise funds through arrangements with collaborators or others that may require us to relinquish rights to certain product candidates that we might otherwise seek to develop or commercialize independently. Our failure to raise capital when needed could materially harm our business, financial condition and results of operations. See Risk Factors.

Our future capital uses and requirements depend on numerous factors, including the following:

- the progress and success of preclinical studies and clinical trials of our product candidates;
- the progress and number of research programs in development;
- the costs associated with conducting Phase I and II clinical trials;
- the costs and timing of obtaining regulatory approvals;
- our ability to establish, and the scope of, any new collaborations;
- our ability to meet the milestones identified in our collaborative agreements that trigger payments;
- the costs and timing of obtaining, enforcing and defending our patent and intellectual property rights; and
- competing technological and market developments.

Future Contractual Obligations

On September 2, 2015, the Company entered into a lease (the "Lease") with AGP Sorrento Business Complex, L.P., for certain premises consisting of a total of approximately 14,971 square feet of office and laboratory space in buildings located at 11535-11585 Sorrento Valley Rd., San Diego, California, to serve as the Company's corporate offices and laboratories (the "New Premises"). Due to the fact that certain tenant improvements needed to be made to the New Premises before the Company could occupy the New Premises, the term of the Lease commenced on February 5, 2015. The Lease terminates six years after such term commencement date, unless earlier terminated in accordance with the Lease. Pursuant to the terms of the Lease, the current monthly base rent paid by the Company is $35,631, subject to annual increases as set forth in the Lease.

The Company has an option to extend the Lease term for a single, five-year period. If the Lease term is extended for the optional five-year period, the monthly base rent will be adjusted based on fair market rental value. In addition to rent, the Company agreed to pay a portion of the taxes and utility, maintenance and other operating costs paid or accrued in connection with the ownership and operation of the property.

Our master lease and sublease of our facility located at 3165 Porter Drive in Palo Alto, California (the "Porter Drive Facility") were terminated on February 28, 2013 and we entered into a termination agreement with ARE-San Francisco No. 24 ("ARE") on February 19, 2013 to voluntarily surrender its premises. As a result of the termination agreement, we were relieved of further obligations under the master lease and further rights to rental income under the sublease and paid a termination fee of approximately $700,000. In addition to the termination fee, if we receive $15 million or more in additional financing in the aggregate, an additional termination fee of $590,504 will be due to ARE. The additional financing was achieved in 2015 and the termination fee is reflected on the balance sheet as an accrued lease contingency fee.

We anticipate that we will continue to incur substantial net losses into the foreseeable future as we: (i) continue our Phase I clinical trial for our stand-alone therapeutic HuMab 5b-1, or MVT-5873, which was initiated in the first quarter of 2016, (ii) initiate our Phase I clinical trial of our PET imaging agent 89Zr-HuMab-5B1, or MVT-2163, (iii) continue to conduct preclinical development activities related to other product development candidates in our library, and (iv) monitor patients in clinical trials that have already completed their treatment regimens. Based on management's assumptions for continuing to develop its existing pipeline of products without additional funding, we expect we will have sufficient funds to meet our obligations through April 2017.

We plan to continue to fund our research and development and operating activities through public or private equity financings, debt financings, strategic partnerships or other arrangements with organizations that have capabilities and/or products that are complementary to our own capabilities and/or products, licensing arrangements, government grants, or other arrangements. However, we cannot be sure that such additional funds will be available on reasonable terms, or at all. If we are unable to secure adequate additional funding, we may be forced to reduce spending, extend payment terms with suppliers, liquidate assets where possible, and/or suspend or curtail planned programs. In addition, if we do not meet our payment obligations to third parties as they come due, we may be subject to litigation claims. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to our management. Any of these actions could materially harm our business, results of operations, and future prospects.

If we raise additional funds by issuing equity securities, substantial dilution to our existing stockholders would result. If we raise additional funds by incurring debt financing, the terms of the debt may involve significant cash payment obligations as well as covenants and specific financial ratios that may restrict our ability to operate our business.

Off-Balance Sheet Arrangements

We have no material off-balance sheet arrangements as defined in Regulation S-K 303(a)(4)(ii).

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

We do not hold any derivative financial instruments, commodity-based instruments or other long-term debt obligations.

Item 8. Financial Statements and Supplementary Data.

All information required by this item is included in Item 15 of Part IV of this Annual Report and is incorporated into this item by reference.

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

None

Item 9A.Controls and Procedures.

a) Disclosure Controls and Procedures

Our principal executive officer and principal financial officer evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2016. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act, is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including our principal executive and principal financial officer, as appropriate to allow timely decisions regarding required disclosure. Based on that evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures are effective, at the reasonable assurance level, in ensuring that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms.

b) Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting for our company. Internal control over financial reporting is defined in Rule 13a-15(f) and 15d-15(f) promulgated under the Exchange Act, as a process designed by, or under the supervision of, a company's principal executive and principal financial officer and effected by the our board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

(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 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. 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. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible enhancements to controls and procedures.

We conducted an evaluation of the effectiveness of internal control over financial reporting based on the framework in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, our principal executive officer and principal financial officer conclude that, at December 31, 2016, our internal controls over financial reporting were effective.

This Annual Report does not include an attestation report of the Company's independent registered public accounting firm regarding internal control over financial reporting. Management's report was not subject to attestation by the Company's independent registered public accounting firm pursuant to rules of the Securities and Exchange Commission that permit the Company to provide only management's report in this Annual Report.

CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING

As required by Rule 13a-15(d) of the Exchange Act, our management, including our principal executive officer and our principal financial officer conducted an evaluation of the internal control over financial reporting to determine whether any changes occurred during the year ended December 31, 2016 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. Based on that evaluation, our principal executive officer and principal financial officer concluded that, there were no such changes during the year ended December 31, 2016.

Item 9B. Other Information.

None.

Item 10.Directors, Executive Officers and Corporate Governance.

Board of Directors

Name	Position
J. David Hansen	Chairman of the Board of Directors, President and Chief Executive Officer
Kenneth M. Cohen	Director (1)(2)(3)(4)
Jeffrey F. Eisenberg	Director (4)
Robert E. Hoffman	Director (1)(2)(3)(4)
Philip O. Livingston, M.D.	Director, Chief Science Officer
Paul V. Maier	Director (1)(3)(4)
Jeffrey V. Ravetch, M.D., Ph.D.	Director
Thomas C. Varvaro	Director (1)(2)(3)(4)

(1) Member of our audit committee

(2) Member of our compensation committee

(3) Member of our nominating and governance committee

(4) Independent member of the board

The following is a brief summary of the background of each of our directors.

J. David Hansen, 65, serves as our President, Chief Executive Officer ("CEO"), and as Chairman of our Board of Directors and, prior to the merger with Telik, Inc. on July 8, 2014 (the "Merger"), served as President, CEO, and Chairman of the Board of Directors of MabVax Therapeutics, Inc. after co-founding the Company in 2006. Mr. Hansen is an experienced biopharmaceutical executive with more than 30 years of industry experience. He has held senior management roles in both private start-up companies as well as small to mid-sized public companies. His senior level experience includes executive management, finance and accounting, corporate development, sales and marketing. During his career, Mr. Hansen has executed a wide variety of in and out licensing agreements, research and development collaborations, joint ventures, divestitures, and acquisitions. Mr. Hansen has developed expertise in the therapeutic areas of immunology, oncology, and infectious disease. Mr. Hansen gained executive management experience at several life sciences companies prior to co-founding the Company that make him particularly suited for his leadership role in the Company. For example, he was a corporate officer of Avanir Pharmaceuticals where he held the titles of Vice President of Commercial Development, Senior Vice President of Corporate Development, and President and Chief Operations Officer of the Avanir Subsidiary Xenerex Biosciences. Prior to Avanir, Mr. Hansen served in multiple roles at Dura Pharmaceuticals including National Sales Director, Director of Marketing, and Director of Business Development. He has additional management experience with Merck & Co. (Schering-Plough), Key Pharmaceuticals, and Bristol Myers Squibb. We believe that Mr. Hansen's extensive experience with public and private pharmaceutical companies in a leadership role qualifies him to serve as the Chairman of our Board of Directors and as our President and Chief Executive Officer.

Kenneth M. Cohen, 61, serves as a member of our Board of Directors and, prior to the Merger, served as a member of the Board of Directors of MabVax Therapeutics, Inc. since July of 2014. Since 2007, Mr. Cohen has served either as a board member, executive officer or advisor to various companies, entrepreneurs and investors in the life sciences area. From January 2011 to August 2014 he served as a member of the Board of Directors of Adamis Pharmaceuticals Corporation (Nasdaq: ADMP). He was a co-founder of publicly held Somaxon Pharmaceuticals, and served as its President and CEO from 2003 through 2007 and continued as a director until June 2008. Prior to Somaxon Pharmaceuticals, Mr. Cohen gained executive management and board experience through various executive positions that make him suitable for membership on the Board of Directors of the Company. For example, he was President and CEO of Synbiotics Corporation; Executive Vice President and Chief Operating Officer for Canji Incorporated, a human gene-therapy company that was acquired by Schering-Plough Corporation; Vice President of Business Affairs at Argus Pharmaceuticals, Inc.; and Vice President of Marketing and Business Development for LifeCell Corporation. Mr. Cohen began his career at Eli Lilly and Company where, among many different responsibilities over ten years, he directed business planning for the Medical Instrument Systems Division and managed the launch of Prozac. He received an A.B. in biology and chemistry from Dartmouth College and an M.B.A. from the Wharton School of the University of Pennsylvania. We believe that Mr. Cohen's 20 years of experience serving as an executive officer including chief executive officer of several life sciences companies, and serving as a member of the board of several life sciences companies qualifies him to serve as a member of the Board of Directors.

Jeffrey F. Eisenberg, 51, has served as a member of our Board of Directors since February 2016. Mr. Eisenberg has served in a variety of senior management positions, and has developed significant experience in the areas of corporate transactions, strategic alliances, product development, commercialization, manufacturing and talent management. From July 2016 to the present, Mr. Eisenberg has served as a director of Xenetic Biosciences, Inc., a biotech company based in Lexington, MA, and from December 2016 to the present, Mr. Eisenberg has served as Chief Operating Officer of Xenetic. From November 1998 to December 2015 Mr. Eisenberg held various executive management positions including President, CEO and a board member of Noven Pharmaceuticals, Inc., the U.S. prescription pharmaceutical division of Hisamitsu Pharmaceutical Inc., a Japanese pharmaceutical company and the world's largest manufacturer of transdermal drug patches. Mr. Eisenberg led the post-acquisition integration of JDS Pharmaceuticals, a private specialty pharmaceutical company purchased by Noven in 1997, as well as the integration of Noven and Hisamitsu following the 2009 acquisition. From 2007 to August 2014 Mr. Eisenberg also served as President of Novogyne Pharmaceuticals, a Women's Health commercial joint venture between Noven and Novartis Pharmaceuticals Corporation. Mr. Eisenberg was appointed President and Chief Executive Officer of Noven following Hisamitsu's acquisition of Noven. Prior to Noven Pharmaceuticals, Inc., Mr. Eisenberg gained extensive legal experience serving as Associate General Counsel and then as Acting General Counsel of IVAX Corporation, at the time a publicly-traded pharmaceutical company with global operations. Prior to serving at IVAX, Mr. Eisenberg was a lawyer in the corporate securities department of the Florida law firm of Steel Hector & Davis, where he began his professional career in 1990.

Mr. Eisenberg is an expert in corporate governance, having advised the boards of IVAX, Noven and others through a number of significant internal and external issues, including mergers and acquisitions, corporate financings, strategic alliances, CEO transitions, securities class action lawsuits, FDA warning letters and consent decrees, and development and implementation of corporate governance policies. Mr. Eisenberg holds a BS, Economics degree from the Wharton School of the University of Pennsylvania, and a JD degree from Columbia University Law School. We believe that Mr. Eisenberg's extensive experience in corporate transactions, product development, corporate governance and executive leadership, qualifies him to serve as a member of our Board of Directors.

Robert E. Hoffman, 51, has served as a member of our Board of Directors since September 2014. Mr. Hoffman is the Executive Vice President and Chief Financial Officer ("CFO") of Innovus Pharmaceuticals, Inc. a position he has held since September 2016. Mr. Hoffman was CFO of AnaptysBio from July 2015 to September 2016. He was part of the founding management team of Arena Pharmaceuticals, Inc. (Nasdaq: ARNA), a biopharmaceutical company, in 1997, serving as Senior Vice President, Finance and CFO until July 2015, except for the period of March 2011 to August 2011, where he served as CFO for Polaris Group, a biopharmaceutical drug company. Mr. Hoffman is a member of the board of directors of CombiMatrix Corporation (Nasdaq: CBMX), a molecular diagnostics company, Kura Oncology, Inc. (Nasdaq: KURA), a biotechnology company, and MabVax Therapeutics Holdings, Inc. (Nasdaq: MBVX), a biopharmaceutical company. He also was a member of the Financial Accounting Standards Board's Small Business Advisory Committee until 2015 and is a member of the steering committee of the Association of Bioscience Financial Officers. Mr. Hoffman received his B.B.A. from St. Bonaventure University, and is licensed as a C.P.A. (inactive) in the State of California. We believe that Mr. Hoffman's extensive experience in financial matters as a chief financial officer in the biopharmaceutical industry qualifies him to serve as a member of our Board of Directors, and as an Audit Committee financial expert.

***Philip O. Livingston, M.D.,* 74,** serves as a member of our Board of Directors and our Chief Science Officer and, prior to the Merger, served as a member of the Board of Directors and Chief Science Officer of MabVax Therapeutics, Inc. since 2012. He received his MD degree from Harvard Medical School and was Professor of Medicine in the Joan and Sanford Weill Medical College at Cornell University and Attending Physician and Member in Memorial Sloan-Kettering Cancer Center where he treated melanoma patients and ran the Cancer Vaccinology Laboratory research lab for over 30 years until his retirement from MSK October 1, 2011. Dr. Livingston's research focused on: identification of suitable targets for immunotherapy of a variety of cancers, construction of polyvalent conjugate vaccines specifically designed to augment antibody responses against these targets, and identification of optimal immunological adjuvants to further augment the potency of these vaccines. He has over 108 publications and 4 issued and 3 pending patents concerning cancer vaccines. Recently, Dr. Livingston helped establish MabVax Therapeutics, Inc., and another biotech company, Adjuvance Technologies, Inc. MabVax supports two randomized Phase II trials with these MSK polyvalent vaccines and establishment of human monoclonal antibodies from the blood of immunized patients. We believe that Dr. Livingston's extensive expertise in immunotherapy qualifies him to serve as a member of our Board of Directors and our Chief Science Officer.

Paul V. Maier, 69, joined our Board of Directors in July 2014. Since 2007, Mr. Maier has served as a member of the Board of Directors of International Stem Cell Corporation (OTCQB: ISCO) and currently serves as the Chairperson of its Audit Committee and as a member of its Compensation and Governance Committees. Since 2012 Mr. Maier has served as Chairman of the Audit Committee and a member of the Governance Committee of the Board of Directors of Apricus Biosciences, Inc. (Nasdaq: APRI). Since 2015, Mr. Maier has served as Chairman of the Audit Committee and member of the Compensation Committee of the Board of Directors of Ritter Pharmaceuticals (Nasdaq: RTTR). Mr. Maier also serves as a Director of Biological Dynamics, a private life science company. From 2009 to June 2014, Mr. Maier served as the CFO of Sequenom, Inc., (acquired by Laboratory Corporation of America Holdings). Prior to Sequenom, Inc., Mr. Maier gained executive management experience through various management positions that make him suitable for membership on the Board of Directors of the Company. For example, Mr. Maier served as Senior Vice President and CFO of Ligand Pharmaceuticals, Inc., where he helped build Ligand from a venture stage company to a commercial, integrated biopharmaceutical organization. Prior to Ligand Pharmaceuticals, Inc., he held various management and finance positions at ICN Pharmaceuticals. Mr. Maier received his M.B.A. from Harvard Business School and a B.S. from Pennsylvania State University. We believe that Mr. Maier's over 25 years of experience in life sciences as a chief financial officer and serving on the board of several life sciences public companies qualifies him to serve as a member of the Board of Directors and as chair of the Audit Committee.

***Jeffrey V. Ravetch, M.D., Ph.D., 65* ,** serves as a member of our Board of Directors and, prior to the Merger, served as a member of the Board of Directors of MabVax Therapeutics, Inc. since March 2014. Dr. Ravetch has served as the Theresa and Eugene Lang Professor at the Rockefeller University and Head of the Leonard Wagner Laboratory of Molecular Genetics and Immunology since 1997. Dr. Ravetch, a native of New York City, received his undergraduate training in molecular biophysics and biochemistry at Yale University, earning his B.S. degree in 1973, working with Donald M. Crothers on the thermodynamic and kinetic properties of synthetic oligoribonucleotides. Dr. Ravetch continued his training at the Rockefeller University—Cornell Medical School MD/Ph.D. program, earning his doctorate in 1978 in genetics with Norton Zinder and Peter Model, investigating the genetics of viral replication and gene expression for the single stranded DNA bacteriophage f1 and in 1979 he earned his M.D. from Cornell University Medical School. Dr. Ravetch pursued postdoctoral studies at the NIH with Phil Leder where he identified and characterized the genes for human antibodies and the DNA elements involved in switch recombination. From 1982 to 1996 Dr. Ravetch was a member of the faculty of Memorial Sloan-Kettering Cancer Center and Cornell Medical College. His laboratory has focused on the mechanisms by which antibodies mediate their diverse biological activities in vivo, establishing the pre-eminence of FcR pathways in host defense, inflammation and tolerance and describing novel inhibitory signaling pathways to account for the paradoxical roles of antibodies as promoting and suppressing inflammation. His work extended into clinical applications for the treatment of neoplastic, inflammatory and infectious diseases.

Dr. Ravetch has received numerous awards including the Burroughs-Wellcome Scholar Award, the Pew Scholar Award, the Boyer Award, the NIH Merit Award, the Lee C. Howley, Sr. Prize (2004), the AAI-Huang Foundation Meritorious Career Award (2005), the William B. Coley Award (2007), the Sanofi-Pasteur Award (2012) and the Gairdner International Prize (2012). He has presented numerous named lectures including the Kunkel Lecture, the Ecker Lecture, the Goidl Lecture, the Grabar Lecture, the Dyer Lecture and the Heidelberger/Kabat Lecture. He has received an honorary doctorate from Freidrich-Alexander University, Nuremberg/Erlangen. He is a member of National Academy of Sciences (2006), the Institute of Medicine (2007), a Fellow of the American Academy of Arts and Sciences (2008) and a Fellow of the American Association for the Advancement of Science (2009).

Dr. Ravetch has contributed extensively to the scientific community by serving as a member of the Scientific Advisory Boards of the Cancer Research Institute, the Irvington Institute for Medical Research and the Damon Runyon Foundation. He has been active in biotechnology for the last two decades, having served as a consultant or member of the Scientific Advisory Boards of Millennium Pharmaceuticals, Exelexis Pharmaceuticals, Regeneron Pharmaceuticals, Medimmune, Genentech, Novartis, Merck, Micromet, Xencor, Suppremol, Igenica, Portola Pharmaceuticals and Momenta Pharmaceuticals, Inc. We believe Dr. Ravetch's extensive scientific knowledge and training qualify him to serve as a member of our Board of Directors.

Thomas C. Varvaro, 47, has served as a member of our Board of Directors since April 2015. Mr. Varvaro has served as the CFO of ChromaDex Corp. (Nasdaq: CDXC) since January 2004 and as its Secretary since March 2006. He also has served as a director of ChromaDex Corporation from March 2006 until May 2010. Mr. Varvaro is responsible for overseeing all aspects of ChromaDex's accounting, information technology, intellectual property management and human resources management. Mr. Varvaro has extensive process-mapping and business process improvement skills, along with a solid information technology background that includes management and implementation experiences ranging from custom application design to enterprise wide system deployment. Mr. Varvaro also has hands-on experience in integrating acquisitions and in new facility startups. In working with manufacturing organizations, Mr. Varvaro has overseen plant automation, reporting and bar code tracking implementations. Mr. Varvaro also has broad legal experience in intellectual property, contract and employment law. Prior to ChromaDex, Mr. Varvaro gained substantial management experience in a number of positions that make him suitable for membership on the Board of Directors of the Company. For example, he was employed by Fast Heat Inc., a Chicago, Illinois based Global supplier to the plastics, HVAC, packaging, and food processing industries, where he began as controller and was promoted to chief information officer and then chief financial officer during his tenure. During his time there Mr. Varvaro was responsible for all financial matters including accounting, risk management and human resources. Earlier in his career Mr. Varvaro gained additional experience in other areas of information technology and accounting roles. For example, Mr. Varvaro was employed by Maple Leaf Bakery, Inc., Chicago, Illinois, during its rise to becoming a national leader in specialty bakery products. During his tenure, Mr. Varvaro served in information technology and accounting roles, helping to shepherd the company from a single facility to national leader in specialty food products. Mr. Varvaro has a B.S. in Accounting from University of Illinois, Urbana-Champaign and is a Certified Public Accountant. We believe Mr. Varvaro's extensive industry experience as an officer and director, as well as his extensive financial and accounting training and management experience qualify him to serve as a member of our Board of Directors, and as an Audit Committee financial expert.

Family Relationships

None of our Directors are related by blood, marriage, or adoption to any other Director, executive officer, or other key employees.

Other Directorships

Other than as disclosed above, none of the Directors of the Company are also directors of issuers with a class of securities registered under Section 12 of the Exchange Act (or which otherwise are required to file periodic reports under the Exchange Act).

Legal Proceedings

We are not aware of any of our directors or officers being involved in any legal proceedings in the past ten years relating to any matters in bankruptcy, insolvency, criminal proceedings (other than traffic and other minor offenses) or being subject to any of the items set forth under Item 401(f) of Regulation S-K.

BOARD OF DIRECTORS COMMITTEES AND MEETINGS

BOARD LEADERSHIP STRUCTURE

The Board of Directors is currently chaired by the President and Chief Executive Officer of the Company, Mr. Hansen. The Company believes that combining the positions of Chief Executive Officer and Chairman of the Board of Directors helps to ensure that the Board of Directors and management act with a common purpose. Integrating the positions of Chief Executive Officer and Chairman can provide a clear chain of command to execute the Company's strategic initiatives. The Company also believes that it is advantageous to have a Chairman with an extensive history with and knowledge of the Company, and extensive technical and industry experience. Notwithstanding the combined role of Chief Executive Officer and Chairman, key strategic initiatives and decisions involving the Company are discussed and approved by the entire Board of Directors. In addition, meetings of the independent directors of the Company are regularly held, which Mr. Hansen does not attend. The Company believes that the current leadership structure and processes maintains an effective oversight of management and independence of the Board of Directors as a whole without separate designation of a lead independent director. However, the Board of Directors will continue to monitor its functioning and will consider appropriate changes to ensure the effective independent function of the Board of Directors in its oversight responsibilities.

ROLE OF THE BOARD IN RISK OVERSIGHT

One of the Board of Director's key functions is informed oversight of the Company's risk management process. The Board of Directors does not have a standing risk management committee, but rather administers this oversight function directly through the Board of Directors as a whole, as well as through various Board of Directors standing committees that address risks inherent in their respective areas of oversight. In particular, our Board of Directors is responsible for monitoring and assessing strategic risk exposure, including a determination of the nature and level of risk appropriate for the Company. The Audit Committee considers and discusses with management the Company's major financial risk exposures and related monitoring and control of such exposures as well as compliance with legal and regulatory requirements. The Nominating & Governance Committee monitors the effectiveness of our corporate governance guidelines. The Compensation Committee assesses and monitors whether our compensation policies and programs have the potential to encourage excessive risk-taking. Any findings regarding material risk exposure to the Company are reported to and discussed with the Board of Directors.

INDEPENDENCE OF THE BOARD OF DIRECTORS AND ITS COMMITTEES

After review of all relevant transactions or relationships between each director, or any of his or her family members, and the Company, its senior management and its Independent Registered Public Accounting Firm, the Board of Directors has determined that all of the Company's directors are independent within the meaning of the applicable NASDAQ listing standards, except Mr. Hansen, the Chairman of the Board of Directors, Chief Executive Officer and President, of the Company, Dr. Livingston, Chief Science Officer; and Dr. Ravetch. As required under the NASDAQ listing standards, the Company's independent directors meet in regularly scheduled executive sessions at which only independent directors are present. The Board of Directors met 6 times and acted by unanimous written consent 11 times during the fiscal year ended December 31, 2016. Each member of the Board of Directors attended 75% or more of the aggregate of the meetings of the Board of Directors held in the last fiscal year during the period for which he was a director and of the meetings of the committees on which he served held in the last fiscal year during the period for which he was a committee member, except Philip Livingston who was unable to attend certain meetings due to travel and other commitments.

The Board of Directors has three committees: the Audit Committee, the Compensation Committee and the Nominating & Governance Committee. Below is a description of each committee of the Board of Directors. The Board of Directors has determined that each member of each committee meets the applicable rules and regulations regarding "independence" and that each member is free of any relationship that would interfere with his individual exercise of independent judgment with regard to the Company.

AUDIT COMMITTEE

The Audit Committee of the Board of Directors oversees the Company's corporate accounting and financial reporting process. For this purpose, the Audit Committee performs several functions. The Audit Committee, among other things: evaluates the performance, and assesses the qualifications, of the Independent Registered Public Accounting Firm; determines and pre-approves the engagement of the Independent Registered Public Accounting Firm to perform all proposed audit, review and attest services; reviews and pre-approves the retention of the Independent Registered Public Accounting Firm to perform any proposed, permissible non-audit services; determines whether to retain or terminate the existing Independent Registered Public Accounting Firm or to appoint and engage a new Independent Registered Public Accounting Firm for the ensuing year; confers with management and the Independent Registered Public Accounting Firm regarding the effectiveness of internal controls over financial reporting; establishes procedures, as required under applicable law, for the receipt, retention and treatment of complaints received by the Company regarding accounting, internal accounting controls or auditing matters and the confidential and anonymous submission by employees of concerns regarding questionable accounting or auditing matters; reviews the financial statements to be included in the Company's Annual Report on Form 10-K and recommends whether or not such financial statements should be so included; and discusses with management and the Independent Registered Public Accounting Firm the results of the annual audit and review of the Company's quarterly financial statements.

The Audit Committee is currently composed of four outside directors: Mr. Maier, Mr. Cohen, Mr. Hoffman and Mr. Varvaro, as of December 31, 2016. The Audit Committee met 5 times during the fiscal year ended December 31, 2016. The Audit Committee Charter was last amended in March 2015 and is available on the Company's website, www.mabvax.com.

The Board of Directors periodically reviews the NASDAQ listing standards' definition of independence for Audit Committee members and has determined that all members of the Company's Audit Committee are independent (as independence is currently defined in Rule 5605(c)(2)(A) of the NASDAQ listing standards and Rule 10A-3(b)(1) of the Securities Exchange Act of 1934, as amended). The Board of Directors has determined that Mr. Maier qualifies as an "audit committee financial expert," as defined in applicable SEC rules. The Board of Directors made a qualitative assessment of Mr. Maier's level of knowledge and experience based on a number of factors, including his formal education and his service in executive capacities having financial oversight responsibilities. These positions include Chief Financial Officer, Senior Vice President, and member of the boards of directors and audit committees of, a number of biotechnology and genomics companies, pursuant to which he has experience preparing, reviewing and supervising the preparation of financial reports. In addition, Mr. Maier holds an M.B.A from Harvard Business School. For further information on Mr. Maier's experience, please see his biography above.

COMPENSATION COMMITTEE

The Compensation Committee of the Board of Directors reviews, modifies and approves the overall compensation strategy and policies for the Company. The Compensation Committee, among other things: reviews and approves corporate performance goals and objectives relevant to the compensation of the Company's officers; determines and approves the compensation and other terms of employment of the Company's Chief Executive Officer; determines and approves the compensation and other terms of employment of the other officers of the Company; and administers the Company's stock option and purchase plans, pension and profit sharing plans and other similar programs.

As of December 31, 2016, the Compensation Committee was composed of four outside directors: Mr. Cohen, Mr. Eisenberg, Mr. Hoffman, and Mr. Varvaro. On May 6, 2016, Mr. Eisenberg was appointed to the Compensation Committee. All members of the Compensation Committee are independent (as independence is currently defined in Rule 5605(a)(2) of the NASDAQ listing standards). The Compensation Committee met 4 times and acted 3 times by written consent during the fiscal year ended December 31, 2016. The Compensation Committee Charter was last amended in March 2015 and is available on the Company's website, www.mabvax.com.

Compensation Committee Interlocks and Insider Participation

No member of our compensation committee has at any time been an employee of ours. None of our executive officers serves as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving as a member of our board of directors or compensation committee.

NOMINATING & GOVERNANCE COMMITTEE

The Nominating & Governance Committee of the Board of Directors is responsible for, among other things: identifying, reviewing and evaluating candidates to serve as directors of the Company; reviewing, evaluating and considering incumbent directors; recommending to the Board of Directors for selection candidates for election to the Board of Directors; making recommendations to the Board of Directors regarding the membership of the committees of the Board of Directors; and assessing the performance of the Board of Directors.

The Nominating & Governance Committee is currently composed of five outside directors: Messrs. Cohen, Eisenberg, Hoffman, Maier and Varvaro, as of December 31, 2016. On May 6, 2016, Mr. Eisenberg was appointed to the Nominating & Governance Committee. All members of the Nominating & Governance Committee are independent (as independence is currently defined in Rule 5605(a)(2) of the NASDAQ listing standards). The Nominating & Governance Committee met 3 times during the fiscal year ended December 31, 2016. The Nominating & Governance Committee Charter was last amended in March 2015 and is available on the Company's website, www.mabvax.com.

The Nominating & Governance Committee has not established any specific minimum qualifications that must be met for recommendation for a position on the Board of Directors. Instead, in considering candidates for director the Nominating & Governance Committee will generally consider all relevant factors, including among others the candidate's applicable education, expertise and demonstrated excellence in his or her field, the usefulness of the expertise to the Company, the availability of the candidate to devote sufficient time and attention to the affairs of the Company, the candidate's reputation for personal integrity and ethics and the candidate's ability to exercise sound business judgment. Other relevant factors, including diversity, experience and skills, will also be considered. Candidates for director are reviewed in the context of the existing membership of the Board of Directors (including the qualities and skills of the existing directors), the operating requirements of the Company and the long-term interests of its stockholders.

The Nominating & Governance Committee considers each director's executive experience leading biopharmaceutical companies, his familiarity and experience with the various operational, scientific and/or financial aspects of managing companies in our industry, and his involvement in building collaborative biopharmaceutical development and commercialization relationships.

With respect to diversity, the Nominating & Governance Committee seeks a diverse group of individuals who have executive leadership experience in life sciences companies, and a complementary mix of backgrounds and skills necessary to provide meaningful oversight of the Company's activities. As a clinical stage drug development company focused on discovering and developing small molecule drugs, we seek directors who have experience in the medical, regulatory and pharmaceutical industries in general, and also look for individuals who have experience with the operational issues that we face in our dealings with clinical and pre-clinical drug development, collaborations with third parties and commercialization and manufacturing issues. Some of our directors have strong financial backgrounds and experience in dealing with public companies, to help us in our evaluation of our operations and our financial model. We also face unique challenges as we implement our strategy to develop, manufacture and commercialize our products by entering into relationships with pharmaceutical companies. The Nominating & Governance Committee annually reviews the Board's composition in light of the Company's changing requirements. The Nominating & Governance Committee uses the Board of Director's network of contacts when compiling a list of potential director candidates and may also engage outside consultants. Pursuant to its charter, the Nominating & Governance Committee will consider, but not necessarily recommend to the Board of Directors, potential director candidates recommended by stockholders. All potential director candidates are evaluated based on the factors set forth above, and the Nominating & Governance Committee has established no special procedure for the consideration of director candidates recommended by stockholders.

Director Nominations

There have been no material changes to the procedures by which a stockholder may recommend nominees to the Board of Directors since our last disclosure of these procedures.

STOCKHOLDER COMMUNICATIONS WITH THE BOARD OF DIRECTORS

The Nominating & Governance Committee of the Board of Directors has adopted a process by which stockholders may communicate with the Board of Directors or any of its individual directors. Stockholders who wish to communicate with the Board of Directors may do so by sending a written communication addressed as follows: Board Communication, MabVax Therapeutics Holdings, Inc., 11535 Sorrento Valley Rd., Suite 400, San Diego, CA 92121. All communications must state the number and class(es) of shares owned by the stockholder making the communication. The Company's Secretary or other officer will review each communication and forward the communication to the Board of Directors, to any individual director to whom the communication is addressed, and/or to any other officer of the Company considered to be necessary or appropriate.

EXECUTIVE OFFICERS

The following table sets forth information regarding the Company's executive officers and key personnel.

Executive Officers:

Name	Position
J. David Hansen	Chairman of the Board of Directors, President and Chief Executive Officer
Gregory P. Hanson, CMA, MBA	Chief Financial Officer
Paul W. Maffuid, Ph.D.	Executive Vice President of Research and Development
Paul Resnick, M.D., MBA	Vice President and Chief Business Officer

The following is a brief summary of the background of each of our executive officers.

J. David Hansen. Biographical information regarding Mr. Hansen is provided above under Board of Directors.

Gregory P. Hanson, CMA, MBA, 70, serves as our CFO, and prior to the Merger served as CFO of MabVax Therapeutics, Inc. since February of 2014. Mr. Hanson has over 30 years serving as CFO/financial executive/board member of public and private life sciences and hi tech companies. From January 2008 to February 2014 Mr. Hanson was Managing Director of First Cornerstone, a board and management advisory service to companies and executives. From November 2009 to November 2016, Mr. Hanson served as Advisory Board Member of Menon International, Inc., and from October 2011 to September 2016, served on the Life Sciences Advisory Board of Brinson Patrick Securities, a boutique investment bank. He also serves either as a board member, mentor or confidential advisor to several other tech and life sciences companies. Mr. Hanson is Past-President and 10-year Member of the Board of Directors of San Diego Financial Executives International (FEI), and a member of the Capital Formation Committee at BIOCOM since 2011. Earlier in his career Mr. Hanson was able to gain substantial executive management experience that help qualify him in his role as CFO. For example, he served as Senior Vice President of Brinson Patrick Securities, where he opened up the San Diego branch and introduced at-the-market financing strategies to public life sciences companies. Prior to Brinson Patrick Securities, Mr. Hanson served as Senior Vice President and CFO of Mast Therapeutics (MSTX—NYSE MKT), and prior to Mast Therapeutics was Vice President and CFO, Chief Accounting Officer, Compliance Officer and Corporate Secretary of Avanir Pharmaceuticals, Inc. (acquired by Otsuka Holdings Co., Ltd.), the developer of the cold sore product Abreva™, and Neudexta™, for the treatment of Pseudobulbar Affect, a central nervous system disorder. During the course of his career, Mr. Hanson has completed approximately $1 billion in financing, licensing and partnering arrangements. Mr. Hanson was a founding and 6-year member of the Small Business Advisory Committee to the Financial Accounting Standards Board, and has spoken at various national conferences, industry organizations and panels on financing strategy and mergers and acquisitions, and twice spoken to the SEC's Committee on Improvements to Financial Reporting.

Mr. Hanson has passed the examination for Certified Public Accountants and is a Certified Management Accountant. He has an MBA with distinction from the University of Michigan, and a BS in Mechanical Engineering from Kansas State University. From 2008 to September 2016 Mr. Hanson maintained Series 7 & Series 63 securities licenses.

Paul W. Maffuid, Ph.D., 61, serves as Executive Vice President of Research and Development. Dr. Maffuid joined the Company in July 2014. From 2011 to June 2014, he worked for AAIPHARMA Services Corporation where he held various management positions including Executive Vice President, Pharma Operations. His responsibilities included formulation, process development, technology transfer, stability and analytical services for clients developing biologic and small molecule therapeutics. He was a member of the Executive Team that transformed a declining business into one of the world's leading providers of integrated development services for the biopharmaceutical sector. Dr. Maffuid has been able to gain extensive experience to qualify him in his executive leadership role over research and development at the Company. For example, prior to joining AAIPHARMA he was the founder of Biopharmalogics, Inc. a consulting service providing Chemistry Manufacturing and Controls (CMC) as well as Drug Metabolism-Pharmacokinetics (DMPK) services for the development of pharmaceutical products which he operated from 2008 to 2011. Earlier in his career Dr. Maffuid was Senior Vice President of Irvine Pharmaceutical Services, Inc., and Vice President of Pharmaceutical Development for Arena Pharmaceuticals. While at Arena Pharmaceuticals Dr. Maffuid was a member of the Executive Management team responsible for all CMC and DMPK in support of discovery, development, and commercial operations. He led the design and construction of a 40,000 sq. ft. cGMP compliant pilot manufacturing facility. Dr. Maffuid had management roles at Magellan Laboratories, Cabrillo Laboratories, and Amylin Pharmaceuticals.

Paul F. Resnick, M.D., MBA, 59, serves as Vice President and Chief Business Officer. Dr. Resnick joined the Company in March 2016. From January 2013 to March 2016 Dr. Resnick was Senior Vice President, Business Development for Juventas Therapeutics, where he was responsible for business and commercial strategy and working with executive management overseeing corporate clinical development, and financial and business strategies. From February 2012 to December 2012, Dr. Resnick was an advisor to several companies in the life sciences area. From January 2008 to January 2012 he was Vice President, Business Development for Intellikine, Inc. (acquired by Takeda Pharmaceuticals), responsible for managing alliances and leading the business development strategy that resulted in securing an acquisition by Takeda Pharmaceuticals. During the course of Dr. Resnick's career, he has been able to gain extensive experience to qualify him in his executive leadership role for business development for the Company. For example, Dr. Resnick held Senior Director positions for Worldwide Business Development, and for Strategic Alliances, at Pfizer Inc., where he was responsible for networking with leaders from biotechnology companies, universities, and research institutions to gain early insights into emerging technologies, and for leading technical and business diligence, negotiations, and alliance management of science and technology initiatives for Pfizer's Biotechnology and Bio-innovation Center. Prior to Pfizer Dr. Resnick held Director and Senior Director positions at Rinat Neuroscience (acquired by Pfizer), Intermune, Inc. and Roche Pharmaceuticals. Dr. Resnick has an M.D. from The Medical College of Wisconsin and an MBA from The Wharton School of the University of Pennsylvania.

Code of Conduct

We have adopted the MabVax Therapeutic Holdings, Inc. Code of Conduct, a code of ethics with which every person who works for us is expected to comply, including without limitation our principal executive officer, principal financial officer, principal accounting officer or controller or persons performing similar functions.

SECTION 16(A) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16(a) of the Securities Exchange Act of 1934, as amended, requires our directors and executive officers, and persons who own more than ten percent of a registered class of our equity securities, to file with the SEC initial reports of ownership and reports of changes in ownership of our common stock and our other equity securities. Officers, directors and greater than ten percent stockholders are required by SEC regulations to furnish us with copies of all Section 16(a) forms they file.

Based solely on a review of the copies of such forms furnished to us during 2016, SEC filings and certain written representations that no other reports were required during the fiscal year ended December 31, 2016, our officers, directors and greater than ten percent stockholders complied with all applicable Section 16(a) filing requirement, except for Kenneth M. Cohen, Jeffrey F. Eisenberg, Robert E. Hoffman, Paul V. Maier, Jeffrey V. Ravetch, and Thomas C. Varvaro who were late on a Section 16(a) filing that took place on July 28, 2016.

Item 11.Executive Compensation.

2016 Summary Compensation Table

The following table sets forth, for the fiscal years 2016 and 2015, compensation awarded or paid to, or earned by, our Chief Executive Officers, our Chief Financial Officer and our other two executive officers at December 31, 2016 (the "Named Executive Officers" or "NEOs").

Name and Principal Position	Year	Salary ($)	Bonus ($)	Restricted Stock Unit Awards ($)[3]	Option Awards ($)[4]	All Other Compensation ($)	Total ($)
J. David Hansen	2016	418,438	141,400	—	393,702	35,717	989,257
President, Chief Executive Officer and Chairman	2015	375,601	149,625	2,077,475	1,493,194	87,770	4,183,665
Gregory P. Hanson	2016	276,014	62,790	—	99,743	15,055	453,602
Chief Financial Officer	2015	271,819	77,175	1,075,480	773,006	19,742	2,217,222
Wolfgang W. Scholz, Ph.D.							
Vice President, Antibody Discovery [1]	2015	225,443	43,125	700,925	503,793	13,950	1,487,236
Paul W. Maffuid	2016	278,737	61,950	—	91,213	34,121	466,021
Vice President, Pharmaceutical Development and Operations	2015	268,154	53,438	768,200	552,147	33,476	1,675,415
Paul F. Resnick	2016	210,781	44,094	—	323,532	20,680	599,087
Vice President, Chief Business Officer [2]	2015	—	—	—	—	—	—

(1) Effective as of March 8, 2016, Dr. Scholz is no longer considered a NEO.

(2) Mr. Resnick was appointed as Vice President and Chief Business Officer of the Company in March 2016.

(3) The amounts in this column represent the aggregate full grant date fair value of restricted stock units (RSUs) granted. Such RSU awards were granted during 2015 with vesting dates after 2015.

(4) The amounts in this column represent the aggregate full grant date fair values of stock options granted, computed in accordance with Accounting Standards Codification 718, or ASC 718, "Compensation—Stock Compensation" using the Black-Scholes option valuation model.

Outstanding Equity Awards at 2016 Fiscal Year-End

The following table summarizes the number of outstanding equity awards held by each of our Named Executive Officers at December 31, 2016 and after giving effect to the Listing Reverse Split. Each option grant is shown separately for each Named Executive Officer. The vesting schedule for each option grant is shown following this table.

Name and Principal Position	Option Grant Date	Number of Securities Underlying Unexercised Options Exercisable (#)	Number of Securities Underlying Unexercised Options Un-exercisable (#)	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price per Share ($)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested ($)
J. David Hansen	2/1/2010	1,690	-0-	-0-	5.33	2/1/2020	-0-	-0-
President, Chief Executive	2/28/2013	3,239	141	-0-	10.66	2/28/2023	-0-	-0-
and Officer Chairman	4/2/2015	40,687	81,374	-0-	17.02	4/2/2025	81,374	275,044
	2/16/2016	-0-	67,569	-0-	3.63	2/16/2026	-0-	-0-
	8/29/2016	-0-	63,400	-0-	5.00	8/29/2026	-0-	-0-
Gregory P. Hanson	3/13/2014	1,807	822	-0-	59.91	3/13/2024	-0-	-0-
Chief Financial Officer	4/2/2015	21,063	42,127	-0-	17.02	4/2/2025	42,127	142,389
	2/16/2016	-0-	2,703	-0-	3.63	2/16/2026	-0-	-0-
	8/29/2016	-0-	26,400	-0-	5.00	8/29/2026	-0-	-0-
Wolfgang W. Scholz, Ph.D. (1)	2/1/2010	939	-0-	-0-	5.33	2/1/2020	-0-	-0-
Vice President, Antibody	2/28/2013	2,160	94	-0-	10.66	2/28/2023	-0-	-0-
Discovery	4/2/2015	13,728	27,455	-0-	17.02	4/2/2025	27,455	92,798
	2/16/2016	-0-	8,109	-0-	3.63	2/16/2026	-0-	-0-
	8/29/2016	-0-	18,800	-0-	5.00	8/29/2026	-0-	-0-
Paul W. Maffuid	9/8/2014	1,056	822	-0-	62.75	9/8/2024	-0-	-0-
Executive Vice President,	4/2/2015	15,045	30,091	-0-	17.02	4/2/2025	30,091	101,708
Research and Developement	2/16/2016	-0-	8,109	-0-	3.63	2/16/2026	-0-	-0-
	8/29/2016	-0-	20,100	-0-	5.00	8/29/2026	-0-	-0-
Paul F. Resnick (2)	3/16/2016	-0-	45,406	-0-	5.48	3/16/2026	-0-	-0-
Vice President,	3/16/2016	-0-	30,271	-0-	12.95	3/16/2026	-0-	-0-
Chief Business Officer	8/29/2016	-0-	15,200	-0-	5.00	8/29/2026	-0-	-0-

(1) Effective as of March 8, 2016, Mr. Scholz is no longer considered a NEO.
(2) Mr. Resnick was appointed as Vice President and Chief Business Officer of the Company in March 2016.

Retirement Plans

The Company does not maintain any defined benefit or defined contribution pension or retirement plans, other than a 401(k) Plan that is offered through our payroll provider. The Company made no matching contributions to the 401(k) Plan in 2016.

Hansen Employment Agreement

The employment agreement with Mr. Hansen (the "Hansen Employment Agreement"), which became effective July 1, 2014, has an initial term of 3 years, with an option to renew or extend the terms if notice is provided by either Mr. Hansen or the Company at least 60 days prior to the end of the term. Under the terms of his agreement, Mr. Hansen received an initial base salary of $315,660. Mr. Hansen's base salary may be increased at the discretion of the Board of Directors or the Compensation Committee. Mr. Hansen is also entitled to an annual cash bonus, based on certain performance-based objectives established by the Compensation Committee of the Board.

The Hansen Employment Agreement may be terminated upon death, disability, with or without Cause (as defined by the Hansen Employment Agreement) by the Company, with Good Reason (as defined in the Hansen Employment Agreement), and upon a Change in Control (as defined in the Employment Agreement), by Mr. Hansen or at either party's election not to renew the employment agreement. In the event the Hansen Employment Agreement is terminated as a result of Mr. Hansen's death, Mr. Hansen's authorized representative shall be entitled to receive all Accrued Obligations (as defined in the employment agreement), full acceleration of vesting of all issued and outstanding stock options, benefits for up to one year, any unpaid annual bonus amounts and a pro rata bonus payment. In the event the Hansen Employment Agreement is terminated by the Company for Disability or without Cause, by Mr. Hansen for Good Reason, non-renewal by the Company or in connection with a Change in Control, Mr. Hansen would be entitled to receive all Accrued Obligations, full acceleration of vesting of all issued and outstanding stock options, unpaid bonus amounts and a pro rata bonus payment, benefits for up to one year or until Mr. Hansen obtains coverage through subsequent employment (whichever is earlier) and severance payments equal to Mr. Hansen's annual base salary payable in 12 equal monthly installments. In the event the employment agreement is terminated by the Company for Cause, without Good Reason by Mr. Hansen, or the parties elect not to renew the agreement, Mr. Hansen will be entitled to payment of any base salary earned but unpaid through the date of termination and any other payment or benefit to which he is entitled under the applicable terms of any applicable company arrangement during the 30-day period following the termination of the Hansen Employment Agreement.

Hanson Employment Agreement

The employment agreement with Mr. Hanson (the "Hanson Employment Agreement"), which became effective July 1, 2014, has an initial term of 3 years, with an option to renew or extend the terms if notice is provided by either Mr. Hanson or us at least 60 days prior to the end of the term. Under the terms of his agreement, Mr. Hanson was entitled to receive an initial annual base salary of $215,000, which may be increased at the discretion of the Board of Directors or the Compensation Committee. Mr. Hanson is also entitled to an annual cash bonus, based on certain performance-based objectives established by the Company. In addition, prior to the merger MabVax Therapeutics had granted Mr. Hanson options which are currently exercisable to purchase up to 2,629 shares of the Company common stock at an exercise price of $59.91 under the terms of the Company 2014 Employee, Director and Consultant Equity Incentive Plan as assumed by the Company pursuant to the Merger Agreement.

The Hanson Employment Agreement may be terminated upon death, disability, with or without Cause (as defined by the Hanson Employment Agreement) by the Company, with Good Reason (as defined in the Hanson Employment Agreement), and upon a Change in Control (as defined in the Employment Agreement), by Mr. Hanson or at either party's election not to renew the employment agreement. In the event the Hanson Employment Agreement is terminated as a result of Mr. Hanson's death, Mr. Hanson's authorized representative shall be entitled to receive all Accrued Obligations (as defined in the employment agreement), full acceleration of vesting of all issued and outstanding stock options, benefits for up to 1 year, any unpaid annual bonus amounts and a pro rata bonus payment. In the event the Hanson Employment Agreement is terminated by the Company for Disability or without Cause, by Mr. Hanson for Good Reason, non-renewal by the Company or in connection with a Change in Control, Mr. Hanson would be entitled to receive all Accrued Obligations, full acceleration of vesting of all issued and outstanding stock options, unpaid bonus amounts and a pro rata bonus payment, benefits for up to one year or until Mr. Hanson obtains coverage through subsequent employment (whichever is earlier) and severance payments equal to Mr. Hanson's annual base salary payable in 12 equal monthly installments. In the event the employment agreement is terminated by the Company for Cause, without Good Reason by Mr. Hanson, or the parties elect not to renew the agreement, Mr. Hanson will be entitled to payment of any base salary earned but unpaid through the date of termination and any other payment or benefit to which he is entitled under the applicable terms of any applicable company arrangement during the 30-day period following the termination of the Hanson Employment Agreement.

Maffuid Employment Agreement

On July 21, 2014, we entered into an Employment Agreement with Paul Maffuid, Ph.D., or the Maffuid Employment Agreement. The Maffuid Employment Agreement has an initial term of 3 years, with an option to renew or extend the terms if notice is provided by either Dr. Maffuid or the Company at least 60 days prior to the end of the term. Under the terms of his agreement, Dr. Maffuid was entitled to receive an initial base salary of $225,000 which may be increased at the discretion of the Board of Directors or the Compensation Committee. Dr. Maffuid is also entitled to an annual bonus, based on certain performance-based objectives established by the Company's Chief Executive Officer. In addition, the Company previously granted Dr. Maffuid options to purchase up to 1,878 shares of the Company's common stock at an exercise price of $62.75 per share under the terms of the Amended and Restated 2014 Employee, Director and Consultant Equity Incentive Plan which was assumed by the Company pursuant to the Merger Agreement.

The Maffuid Employment Agreement may be terminated upon death, disability, with or without Cause (as defined by the Maffuid Employment Agreement) by the Company, with Good Reason (as defined in the Maffuid Employment Agreement and upon a Change in Control (as defined in the Employment Agreement), by Dr. Maffuid or at either party's election not to renew the employment agreement. In the event the Maffuid Employment Agreement is terminated as a result of Dr. Maffuid's death, Dr. Maffuid's authorized representative shall be entitled to receive all Accrued Obligations (as defined in the employment agreement), full acceleration of vesting of all issued and outstanding stock options, benefits for up to 1 year, any unpaid annual bonus amounts and a pro rata bonus payment. In the event the Maffuid Employment Agreement is terminated by the Company for Disability or without Cause, by Dr. Maffuid for Good Reason, non-renewal by the Company or in connection with a Change in Control, Dr. Maffuid would be entitled to receive all Accrued Obligations, full acceleration of vesting of all issued and outstanding stock options, unpaid bonus amounts and a pro rata bonus payment, benefits for up to one year or until Dr. Maffuid obtains coverage through subsequent employment (whichever is earlier) and severance payments equal to Dr. Maffuid's annual base salary payable in 12 equal monthly installments. In the event the employment agreement is terminated by the Company for Cause, without Good Reason by Dr. Maffuid, or the parties elect not to renew the agreement, Dr. Maffuid will be entitled to payment of any base salary earned but unpaid through the date of termination and any other payment or benefit to which he is entitled under the applicable terms of any applicable company arrangement during the 30-day period following the termination of the Maffuid Employment Agreement.

Resnick Employment Agreement

On March 16, 2016, we entered into an Employment Agreement with Paul F. Resnick, M.D., or the Resnick Employment Agreement. The Resnick Employment Agreement provides that Dr. Resnick's employment is "at-will" and is not for any specified term or length of time. Under the terms of his agreement, Dr. Resnick was entitled to receive an initial base salary of $265,000 which may be increased at the discretion of the Company. Dr. Resnick is also entitled to an annual bonus of up to 30% of his base salary. In connection with hiring Dr. Resnick, the Company granted Dr. Resnick options to purchase up to 30,271 shares of the Company's common stock at an exercise price of $12.95 per share and 45,406 shares of the Company's common stock at an exercise price of $5.48 per share under the terms of the Amended and Restated 2014 Employee, Director and Consultant Equity Incentive Plan.

The Resnick Employment Agreement may be terminated upon death, disability, with or without Cause (as defined by the Resnick Employment Agreement) by the Company, with Good Reason (as defined in the Resnick Employment Agreement), and upon a Change in Control (as defined in the Employment Agreement) or at either party's election to terminate upon 30 days' prior written notice. In the event the Resnick Employment Agreement is terminated as a result of Dr. Resnick's death, Dr. Resnick's authorized representative shall be entitled to receive all Accrued Obligations (as defined in the employment agreement), full acceleration of vesting of all issued and outstanding stock options, benefits for up to 1 year, any unpaid annual bonus amounts and a pro rata bonus payment. In the event the Resnick Employment Agreement is terminated by the Company for Disability or without Cause, by Dr. Resnick for Good Reason, or in connection with a Change in Control, Dr. Resnick would be entitled to receive all Accrued Obligations, full acceleration of vesting of all issued and outstanding stock options, unpaid bonus amounts and a pro rata bonus payment, benefits for up to one year or until Dr. Resnick obtains coverage through subsequent employment (whichever is earlier) and severance payments equal to Dr. Resnick's annual base salary payable in 12 equal monthly installments.

2015 Management Bonus Plan

On April 2, 2015, our Compensation Committee approved the 2015 Management Bonus Plan outlining maximum target bonuses of the base salaries of certain of our executive officers. Under the terms of the 2015 Management Bonus Plan, the Company's Chief Executive Officer shall receive a maximum target bonus of up to 50% of his annual base salary, the Chief Financial Officer shall receive a maximum target bonus of up to 35% of his annual base salary and the Company's Vice President shall receive a maximum target bonus of up to 25% of his annual base salary. On February 16, 2016, our Compensation Committee approved a 2016 Management Bonus Plan outlining maximum target bonuses of the base salaries of certain of our executive officers. Under the terms of the 2016 Management Plan, the Company's Chief Executive Officer shall receive a maximum target bonus of up to 50% of his annual base salary, and the Chief Financial Officer and each of the Company's Vice Presidents of Discovery and Development shall receive a maximum target bonus of up to 30% of his annual base salary.

DIRECTOR COMPENSATION

Non-employee directors do not receive any separate compensation for their board of director activities, other than Dr. Ravetch. In April 2015, Dr. Ravetch received 17,770 shares of fully vested restricted common stock valued at $302,450 in exchange for future services of at least one year. On April 1, 2016, we entered into a two-year consulting agreement with Dr. Ravetch, whereby Dr. Ravetch will provide key technology, predevelopment, corporate development, and other consulting services in exchange for $100,000 in cash compensation each year of the agreement. During the year ended December 31, 2016, non-named-executive-officer directors received the compensation described below for their services as director.

2016 Director Compensation Table

Name of Director	Fees Earned or Paid in Cash ($)	Option Awards ($) (1)	Stock Awards ($) (3)	Total ($)
Philip O. Livingston, M.D. (2)	—	—	$ —	$ —
Robert E. Hoffman (4)(7)	$ 31,500	$ 27,778	$ —	$ 59,278
Jeffrey Ravetch, M.D. (4)(5)(7)	$ 26,000	$ 74,412	$ —	$ 100,412
Paul V. Maier (4)(7)	$ 38,500	$ 27,778	$ —	$ 66,278
Kenneth M. Cohen (4)(7)	$ 34,500	$ 27,778	$ —	$ 62,278
Tom Varvaro (4)(8)	$ 26,000	$ 26,812	$ —	$ 52,812
Jeffrey F. Eisenberg (6)	$ 16,703	$ 38,939	$ —	$ 55,642

(1) The amounts in this column represent the aggregate full grant date fair values of stock options granted to each of the non-employee directors computed in accordance with Accounting Standards Codification 718, or ASC 718, "Compensation—Stock Compensation," excluding the effect of estimated forfeitures. The amounts reported for these options may not represent the actual economic values that the Company's non-employee directors will realize from these options, as the actual value realized will depend on the Company's performance, stock price and their continued services.

(2) Dr. Livingston does not receive any cash compensation as a director. Dr. Livingston's employee compensation in 2016 consisted of $60,000 in cash compensation. In addition, Dr. Livingston received 700 options on August 29, 2016. Dr. Livingston had 3,705 options outstanding at December 31, 2016.

(3) Represents the aggregate grant date fair value of restricted stock and restricted stock units granted in accordance with Accounting Standards Codification 718, or ASC 718, "Compensation—Stock Compensation."

(4) Non-employee directors serving on the board during 2016 were each granted 4,730 options on June 29, 2016 at an exercise price of $4.07 per share with a grant date fair value of $13,437 vesting over one year. In addition, Mr. Cohen, Mr. Hoffman, Mr. Maier and Dr. Ravetch each were granted 4,100 options. Mr. Varvaro was granted 3,800 options on August 29, 2016 at an exercise price of $5.00 with grant date fair values of $14,431, and $13,375, respectively, vesting over three years.

(5) In addition to the options granted to all non-employee directors, on November 3, 2016, Dr. Ravetch was granted 17,500 options with an exercise price of $3.75 per share with a grant date fair value of $46,544 vesting over three years. Dr. Ravetch has 37,192 options and 3,086 restricted stock units outstanding at December 31, 2016.

(6) Mr. Eisenberg was appointed to the board of directors in February of 2016. In addition to the options granted to all non-employee directors, he was granted 6,757 options on February 19, 2016 at an exercise price of $3.70 per share with a grant date fair value of $17,407 vesting over three years, 4,730 options on June 29, 2016 at an exercise price of $4.07 per share with a grant date fair value of $13,347 vesting over one year, and 2,300 options on August 29, 2016 at an exercise price of $5.00 with a grant date fair value of $8,095 vesting over three years. Mr. Eisenberg had 13,787 awards outstanding at December 31, 2016.

(7) Mr. Hoffman, Mr. Maier and Mr. Cohen each had a total of 19,692 options and 3,086 restricted stock units outstanding at December 31, 2016.

(8) Mr. Varvaro had a total of 17,889 options and 3,086 restricted stock units outstanding at December 31, 2016.

Amended and Restated Director Compensation Policy

In 2015, under our Non-Employee Director Compensation Policy, or the Policy, members of the Board of Directors who are not employees of, or compensated consultants to the Company or any of its affiliates (an "Outside Director"), were entitled to receive certain stock option grants.

Under the Policy, each newly appointed or elected Outside Director was granted a non-qualified stock option to purchase up to 1,502 shares of our common stock on the date of his or her initial appointment or election to our Board of Directors. These initial option grants were fully vested on the date of the grant, and had an exercise price equal to the fair market value of shares of our common stock as determined in the Stock Plan on the date of grant.

Under the Policy in 2015, our Outside Directors were entitled to receive annual cash payments of $12,000 payable on a monthly pro-rata basis and cash payments of $1,250 per meeting attended in person and $750 per meeting attended telephonically. On April 3, 2015, the Board ratified the Compensation Committee's amendment to the Policy and implementation of the below compensation for all Outside Directors:

- Each Non-employee Board member shall receive a cash retainer of $24,000 per year. Chairmen of each committee shall receive an additional cash retainer as follows: (i) $12,000 for the Chairman of the Audit Committee; (ii) $8,000 for the Chairman of the Compensation Committee; and (iii) $5,000 for the Chairman of the Nominating Committee. All such retainers will be paid on a quarterly basis;

- Each current Board member received a one-time grant, and each new member going forward shall receive an initial one time grant of: 9,257 shares of common stock, half of which shall be comprised of restricted stock units and half of which shall be comprised of stock option with three-year annual vesting; and

- Each Non-employee Board member will also receive an automatic annual grant of 4,780 stock options, with one year vesting.

- A one-time issuance of 2,703 restricted shares of common stock;

- The issuance of all vested options and restricted stock grants held on such date; and

- The payment of all earned but unpaid cash compensation for their services on the Board and its committees, as of such date.

On February 16, 2016, the Compensation Committee of the Board of Directors of the Company approved the following amendments to Company's policy for compensating non-employee members of the Board:

- The initial equity grant upon first appointment (or election) of future non-employee directors to the Board shall be a 10-year option to purchase 6,757 shares of the Company's common stock, under the Company's Second Amended and Restated 2014 Equity Incentive Plan with 3-year annual vesting and a strike price equal the closing price of the Company's common stock on the effective date of the appointment (or election);

- The annual cash retainer for each non-employee director, paid quarterly, is increased by $1,000 per calendar quarter to a total of $7,000 per quarter, effective April 1, 2016; and

- The additional annual cash retainer for the chairperson of each of the Audit, Compensation, and Nominating and Governance Committees, paid quarterly, is increased by $1,000 per calendar year, such that each chairperson retainer shall be as follows, effective April 1, 2016: Audit Committee: $13,000; Compensation Committee: $9,000; Nominating and Governance Committee: $6,000.

On August 25, 2016, the Compensation Committee of the Board of Directors of the Company approved the following amendments to Company's policy for compensating non-employee members of the Board:

- The initial equity grant upon first appointment (or election) of future non-employee directors to the Board shall be a 10-year option to purchase 25,000 shares of the Company's common stock, under the Company's Second Amended and Restated 2014 Equity Incentive Plan with 3-year annual vesting and a strike price equal the closing price of the Company's common stock on the effective date of the appointment (or election).

- The additional automatic annual option grant to each non-employee director on the date of the Company's annual meeting shall be a 10-year option to purchase 17,500 shares of the Company's common stock, under the Company's Second Amended and Restated 2014 Equity Incentive Plan with 1-year vesting and a strike price equal the closing price of the Company's common stock on the date of the annual meeting.

On February 6, 2017, the Compensation Committee of the Board of Directors of the Company approved the following amendments to Company's policy for compensating non-employee members of the Board:

- The initial equity grant upon first appointment (or election) of future non-employee directors to the Board shall be a 10-year option to purchase 30,000 shares of the Company's common stock, under the Company's Second Amended and Restated 2014 Equity Incentive Plan with 3-year annual vesting and a strike price equal the closing price of the Company's common stock on the effective date of the appointment (or election); and

- The additional automatic annual option grant to each non-employee director on the date of the Company's annual meeting shall be a 10-year option to purchase 20,000 shares of the Company's common stock, under the Company's Second Amended and Restated 2014 Equity Incentive Plan with 1-year vesting and a strike price equal the closing price of the Company's common stock on the date of the annual meeting.

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

The following table sets forth information known to us concerning the beneficial ownership of our common stock for:

- each person known by us to beneficially own more than 5% of our common stock;
- each of our directors;
- each of our executive officers; and
- all of our directors and executive officers as a group.

Beneficial ownership is determined in accordance with the rules and regulations of the SEC. In general, a person is deemed to be the beneficial owner of (i) any shares of the Company's common stock over which such person has sole or shared voting power or investment power, plus (ii) any shares which such person has the right to acquire beneficial ownership of within 60 days of the above date, whether through the exercise of options, warrants or otherwise. Percentage ownership calculations for beneficial ownership are based on 6,296,110 shares outstanding as of February 28, 2017. Applicable percentages are based on 6,296,110 shares of common stock outstanding as of February 28, 2017 adjusted as required by rules promulgated by the SEC.

Name and Address of Beneficial Owner	Number of Shares of Common Stock	Percentage of Common Stock
5% Stockholders		
None	—	—%
Directors and Executive Officers		
Philip O. Livingston, M.D. (1)	196,286	3.12%
Jeffrey Ravetch, M.D., Ph.D. (2)	12,404	*
J. David Hansen (3)	193,421	3.00%
Robert E. Hoffman (4)	13,756	*
Kenneth M. Cohen (5)	23,113	*
Paul V. Maier (6)	13,080	*
Gregory P. Hanson (7)	89,100	1.40%
Paul W. Maffuid, Ph.D. (8)	65,477	1.03%
Thomas C. Varvaro (9)	10,902	*
Jeffrey F. Eisenberg (10)	2,253	*
Paul Resnick (11)	25,226	*
All executive officers and directors as a group (10 persons)	645,018	9.67%

* Less than 1%.

(1) Consists of (i) 176,675 shares held by RTP Venture Fund, (ii) 14,885 shares held by Philip O. Livingston, (iii) 1,721 shares held by the Joan L. Tweedy 2011 Revocable Trust, or the Tweedy Trust, and (iv) 3,005 shares subject to options exercisable within 60 days of February 28, 2017 held by Philip O. Livingston. Voting and dispositive decisions of RTP Venture Fund, LLC are made by Philip Livingston, and Philip O. Livingston is a trustee of the Tweedy Trust. The address for RTP Venture Fund, LLC is 156 E. 79th Street, Apt. 6C, New York, NY 10075.

(2) Includes 9,318 shares subject to options exercisable within 60 days of February 28, 2017, and 1,543 shares of restricted stock units vesting within 60 days of February 28, 2017.

(3) Includes 108,967 shares subject to options exercisable within 60 days of February 28, 2017, 6,238 common stock warrants purchased in the August 2016 financing transaction, and 40,687 shares of restricted stock units vesting within 60 days of February 28, 2017.

(4) Includes 9,318 shares subject to options exercisable within 60 days of February 28, 2017, and 1,543 shares of restricted stock units vesting within 60 days of February 28, 2017.

(5) Includes 9,318 shares subject to options exercisable within 60 days of February 28, 2017, 6,238 common stock warrants purchased in the August 2016 financing transaction, and 1,543 shares of restricted stock units vesting within 60 days of February 28, 2017.

(6) Includes 9,318 shares subject to options exercisable within 60 days of February 28, 2017, and 1,543 shares of restricted stock units vesting within 60 days of February 28, 2017.

(7) Includes 45,054 shares subject to options exercisable within 60 days of February 28, 2017, 6,238 common stock warrants purchased in the August 2016 financing transaction, and 21,064 shares of restricted stock units vesting within 60 days of February 28, 2017.

(8) Includes 34,007 shares subject to options exercisable within 60 days of February 28, 2017, 4,158 common stock warrants purchased by the executive in the August 2016 financing transaction, and 15,045 shares of restricted stock units vesting within 60 days of February 28, 2017.

(9) Includes 7,816 shares subject to options exercisable within 60 days of February 28, 2017 and 1,543 shares of restricted stock units vesting within 60 days of February 28, 2017.

(10) Includes 2,253 shares subject to options exercisable within 60 days of February 28, 2017.

(11) Includes 25,226 shares subject to options exercisable within 60 days of February 28, 2017

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

We entered into Separation and Release Agreements and are and were parties to the employment agreements with each of our officers as set forth in the section entitled “Executive and Director Compensation” above. Pursuant to our Audit Committee Charter, the Audit Committee is responsible for reviewing and approving, prior to our entry into any such transaction, all transactions in which we are a participant and in which any parties related to us have or will have a direct or indirect material interest.

Ravetch Grant

On April 3, 2015, the Board approved the issuance of an additional restricted stock award of 17,770 shares to Jeffrey Ravetch. This award is for future services covering at least a one-year period. The award was granted in addition to the prior award to Dr. Ravetch on April 2, 2015 of: (i) 4,629 restricted shares and (ii) options to purchase 4,629 shares of common stock with an exercise price of $17.02 per share, for a total grant of 27,028 restricted shares and options.

Livingston Grant

On March 23, 2015, the Board of Directors approved a restricted stock award by the Company of 135,135 shares of common stock, to be negotiated with Phil Livingston, Ph.D. for his continuing service to the Company. On April 4, 2015, the Company awarded and issued the shares to Dr. Livingston by virtue of a common stock purchase agreement, in exchange for Dr. Livingston’s ongoing services as a member of the Company’s Board of Directors. On May 13, 2015, the Compensation Committee of the Board clarified that the award is being granted in consideration for at least one year of Dr. Livingston’s services.

Ravetch Agreement

On April 1, 2016 we entered into a consulting agreement with Dr. Ravetch to provide key technology and product development, as well as corporate development and consulting services, in addition to his services as a Board member. The term of the agreement is 2 years beginning January 1, 2016, and Dr. Ravetch will receive $100,000 cash compensation per year.

Director Independence

After review of all relevant transactions or relationships between each director and nominee for director, or any of his or her family members, and the Company, its senior management and its Independent Registered Public Accounting Firm, the Board of Directors has determined that all of the Company’s directors are independent, as of December 31, 2016 within the meaning of the applicable SEC rules and the NASDAQ listing standards, except Mr. Hansen, the Chairman of the Board of Directors and Chief Executive Officer and President of the Company, Dr. Livingston, Chief Science Officer of the Company, and Dr. Ravetch.

Item 14. Principal Accounting Fees and Services

The following summarizes the fees billed by our independent registered public accounting firm for audit, tax and other professional services for the years ended December 31, 2016 and 2015:

	2016 CohnReznick LLP	2015 CohnReznick LLP
Audit and Registration Related Fees[1]	$ 251,213	$ 216,875
Audit-Related Fees	—	—
Tax Fees[2]	—	—
All Other Fees[3]	—	—
Total Fees	$ 251,213	$ 216,875

(1) Audit fees represent professional services provided in connection with the audit of our financial statements, review of our quarterly financial statements, and audit service in connection with other regulatory filings.

(2) Tax Fees consist of fees billed for professional services rendered in connection with tax compliance, tax advice, and tax planning. We incurred no such fees in the fiscal years ended December 31, 2016 and 2015.

(3) Other fees consist of fees for products and services other than the services reported above. There were no other fees for services by our independent registered public accounting firms for the fiscal years ended December 31, 2016 and 2015.

Audit Committee Pre-approval Policies and Procedures

Our Audit Committee assists the Board in overseeing and monitoring the integrity of the Company's financial reporting process, its compliance with legal and regulatory requirements and the quality of its internal and external audit processes. The role and responsibilities of the Audit Committee are set forth in a written charter adopted by the Board, which is available on our website at www.mabvax.com. The Audit Committee is responsible for selecting, retaining and determining the compensation of our independent public accountant, approving the services they will perform, and reviewing the performance of the independent public accountant. The Audit Committee reviews with management and our independent public accountant our annual financial statements on Form 10-K and our quarterly financial statements on Forms 10-Q. The Audit Committee reviews and reassesses the charter annually and recommends any changes to the Board for approval. The Audit Committee is responsible for overseeing our overall financial reporting process. In fulfilling its responsibilities for the financial statements for fiscal year 2016, the Audit Committee took the following actions:

- reviewed and discussed the audited financial statements for the fiscal year ended December 31, 2016 with management and CohnReznick LLP ("CohnReznick"), our independent public accountant;
- discussed with CohnReznick the matters required to be discussed in accordance with the rules set forth by the Public Company Accounting Oversight Board ("PCAOB"), relating to the conduct of the audit; and
- received written disclosures and the letter from CohnReznick regarding its independence as required by applicable requirements of the PCAOB regarding CohnReznick's communications with the Audit Committee and the Audit Committee further discussed with CohnReznick its independence. The Audit Committee also considered the status of pending litigation, taxation matters and other areas of oversight relating to the financial reporting and audit process that the Audit Committee determined appropriate.

Our Audit Committee approved all services that our independent accountants provided to us in the past two fiscal years.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

The following documents are filed as part of this Annual Report:

1. *Financial Statements.* Our consolidated financial statements and the Report of Independent Registered Public Accounting Firm are included in Part IV of this Report on the pages indicated:

2. *Financial Statement Schedules.* All schedules are omitted because they are not applicable or the required information is shown in the consolidated financial statements or the notes thereto.

3. *Exhibits:*

Exhibit No.	Description	Form	Filing Date/ Period End	Exhibit Number
1.1	Form of Underwriting Agreement	8-K	8/17/2016	1.1
2.1	Agreement and Plan of Merger and Reorganization, dated May 12, 2014, between the Company, Tacoma Acquisition Corp., Inc. and MabVax Therapeutics, Inc.	8-K	5/12/2014	2.1
2.2	Amendment No.1, dated as of June 30, 2014, by and between the Company and MabVax Therapeutics, Inc.	8-K	7/1/2014	2.1
2.3	Amendment No.2 to the Agreement and Plan of Merger, dated July 7, 2014, by and among the Company, Tacoma Acquisition Corp. and MabVax Therapeutics, Inc.	8-K	7/9/2014	2.1
3.1	Certificate of Designations, Preferences and Rights of Series C Convertible Preferred Stock	8-K	9/3/2014	3.1
3.2	Amended and Restated Certificate of Incorporation	8-K	9/9/2014	3.1
3.3	Certificate of Amendment of Amended and Restated Certificate of Incorporation	8-K	9/9/2014	3.2
3.4	Amended and Restated Bylaws	8-K	12/14/2007	3.2
3.5	Certificate of Designations, Preferences and Rights of Series D Convertible Preferred Stock	8-K	3/26/2015	3.1
3.6	Certificate of Designations, Preferences and Rights of Series E Convertible Preferred Stock	10-K	3/31/2015	3.8
3.7	Certificate of Designations, Preferences and Rights of Series F Convertible Preferred Stock	8-K	8/17/2016	3.2
3.8	Certificate of Amendment to Amended and Restated Certificate of Incorporation	8-K	8/17/2016	3.1
3.9	Certificate of Elimination of Series A-1 Convertible Preferred Stock	8-K	9/23/2016	3.1
3.10	Certificate of Elimination of Series B Convertible Preferred Stock	8-K	9/23/2016	3.2
3.11	Certificate of Elimination of Series C Convertible Preferred Stock	8-K	9/23/2016	3.3
3.12	Certificate of Correction of Amended and Restated Certificate of Incorporation	8-K	9/23/2016	3.4

4.1	Securities Purchase Agreement, dated as of February 12, 2014, between MabVax Therapeutics, Inc. and the purchasers set forth on the signature pages thereto including that certain Amendment No. 1 to Securities Purchase Agreement, dated as of May 12, 2014, between MabVax Therapeutics, Inc. and the persons and entities identified on the signature pages thereto	8-K	5/12/2014	10.3
4.2	Registration Rights Agreement, dated as of February 12, 2014, between MabVax Therapeutics, Inc. and the persons and entities identified on the signature pages thereto	8-K	5/12/2014	10.2
4.3	Form of Exchange Agreement	8-K	9/3/2014	10.1
4.4	Form of Waiver Letter	8-K	9/3/2014	10.2
4.5	Form of Common Stock Certificate	S-1	9/29/2014	4.1
4.6	Form of Waiver Extension Letter	8-K	9/30/2014	10.1
4.7	Form of Subscription Agreement, dated March 31, 2015, between the Company and the subscribers set forth on the signature pages thereto	10-K	3/31/2015	4.11
4.8	Form of Common Stock Purchase Warrant	10-K	3/31/2015	4.12
4.9	Form of Registration Rights Agreement, dated March 31, 2015, between the Company and the persons and entities identified on the signature pages thereto	10-K	3/31/2015	4.13
4.10	Form of Secured Promissory Note	8-K	1/19/2016	4.1
4.11	Form of Warrant	8-K	1/19/2016	4.2
4.12	Form of Warrant	8-K	8/17/2016	4.1
4.13	Form of Underwriter Warrant	8-K	8/17/2016	4.2
10.1	Separation Agreement and Release, dated May 12, 2014, between Michael M. Wick and the Company	8-K	5/12/2014	10.4
10.2	Separation Agreement and Release, dated May 12, 2014, between William P. Kaplan and the Company	8-K	5/12/2014	10.5
10.3	Separation Agreement and Release, dated May 12, 2014, between Steven R. Schow and the Company	8-K	5/12/2014	10.6
10.4	Separation Agreement and Release, dated May 12, 2014, between Wendy K. Wee and the Company	8-K	5/12/2014	10.7
10.5	Michael Wick Resignation Letter, dated July 7, 2014	8-K	7/9/2014	99.1
10.6	Edward W. Cantrall Resignation Letter, dated July 7, 2014	8-K	7/9/2014	99.2
10.7	Steven R. Goldring Resignation Letter, dated July 7, 2014	8-K	7/9/2014	99.3

10.9	Richard B. Newman Resignation Letter, dated July 7, 2014	8-K	7/9/2014	99.4
10.10	Employment Agreement, dated July 1, 2014, by and between MabVax Therapeutics, Inc. and J. David Hansen	10-Q	8/8/2014	10.9
10.11	Employment Agreement, dated July 1, 2014, by and between MabVax Therapeutics, Inc. and Gregory P. Hanson	10-Q	8/8/2014	10.10
10.12	Employment Agreement, dated July 1, 2014, by and between MabVax Therapeutics, Inc. and Wolfgang W. Scholz, Ph.D.	10-Q	8/8/2014	10.11
10.13	Securities Purchase Agreement, dated July 8, 2014, by and between MabVax Therapeutics, Inc. and certain institutional investors set forth therein	10-Q	8/8/2014	10.12
10.14	Form of Indemnification Agreement	8-K	9/9/2014	10.1
10.15	Second Amended and Restated MabVax Therapeutics Holdings, Inc. 2014 Employee, Director and Consultant Equity Incentive Plan	10-K	3/31/2015	10.15
10.16	Non-Employee Director Compensation Policy	10-Q/A	8/12/2015	10.1
10.17	Standard Industrial Net Lease, dated as of May 23, 2008, by and between MabVax Therapeutics, Inc. and Sorrento Square	10-Q/A	8/12/2015	10.2
10.18	First Amendment to that Standard Industrial Net Lease, dated May 6, 2010, by and between MabVax Therapeutics, Inc. and Sorrento Square	10-Q/A	8/12/2015	10.3
10.19	Second Amendment to that Standard Industrial Net Lease, dated August 1, 2012, by and between the Company and Sorrento Square	10-Q/A	8/12/2015	10.4
10.20	Employment Agreement, dated July 21, 2014, 2014, by and between MabVax Therapeutics, Inc. and Paul Maffuid, Ph.D.	10-Q/A	8/12/2015	10.5
10.21	Development and Manufacturing Services Agreement, dated April 15, 2014, by and between MabVax Therapeutics, Inc. and Gallus BioPharmaceuticals NJ, LLC	10-Q/A	8/12/2015	10.6
10.22	Exclusive License Agreement for “Polyvalent Conjugate Vaccines for Cancer” (SK#14491), dated as of June 30, 2008, by and between MabVax Therapeutics, Inc. and Sloan-Kettering Institute for Cancer Research	10-Q/A	8/12/2015	10.7
10.23	Research and License Agreement, dated as of April 7, 2008, by and between MabVax Therapeutics, Inc. and Sloan-Kettering Institute for Cancer Research	10-Q/A	8/12/2015	10.8
10.24	Exclusive License to Unimolecular Antibodies, dated October 13, 2011, by and between MabVax Therapeutics, Inc. and Sloan-Kettering Institute for Cancer Research	10-Q/A	8/12/2015	10.9

10.25	Option Agreement, dated August 29, 2014, by and between MabVax Therapeutics, Inc. and Juno Therapeutics, Inc.	10-Q/A	8/12/2015	10.10
10.26	SBIR Contract from National Cancer Institute	10-Q/A	8/12/2015	10.
10.27	Form of Exchange Agreement (Series A-1 Preferred Stock and Series A-1 Warrants).	8-K	3/26/2015	10.1
10.28	Form of Exchange Agreement (Series B Preferred Stock and Series B Warrants).	8-K	3/26/2015	10.2
10.29	2008 Equity Incentive Plan	10-K	3/31/2015	10.29
10.30	Form of Option Agreement, 2008 Equity Incentive Plan	10-K	3/31/2015	10.30
10.31	Form of Lockup Agreement dated as of April 3, 2015	8-K	4/6/2015	10.3
10.32	Consulting Agreement with The Del Mar Consulting Group, Inc. and Alex Partners, LLC dated as of April 5, 2015	8-K	4/6/2015	10.4
10.33	Form of Escrow Deposit Agreement dated as of April 14, 2015	8-K	4/15/2015	10.1
10.34	Form of Amendment Agreement to Registration Rights Agreement	8-K	6/10/2015	10.1
10.35	Amendment to Escrow Deposit Agreement dated June 22, 2015	8-K	6/24/2015	10.1
10.36	Letter Agreement dated June 30, 2015 between MabVax Therapeutics, Inc. and OPKO Health, Inc.	8-K	7/1/205	10.1
10.37	Form of Proposed Lease Agreement with AGP Sorrento Business Complex, L.P	S-1	8/25/2015	10.37
10.38	Form of Amendment Agreement No. 2 to Registration Right s Agreement	8-K	8/4/2015	10.1
10.39	Non-Employee Director Compensation Policy	10-Q/A	8/12/2015	10.1
10.41	Standard Industrial Net Lease, dated as of May 23, 2008, by and between MabVax Therapeutics, Inc. and Sorrento Square	10-Q/A	8/12/2015	10.2
10.42	First Amendment to that Standard Industrial Net Lease, dated May 6, 2010, by and between MabVax Therapeutics, Inc. and Sorrento Square	10-Q/A	8/12/2015	10.3
10.43	Second Amendment to that Standard Industrial Net Lease, dated August 1, 2012, by and between the Company and Sorrento Square	10-Q/A	8/12/2015	10.4

10.44	Employment Agreement, dated July 21, 2014, by and between MabVax Therapeutics, Inc. and Paul Maffuid, Ph.D.	10-Q/A	8/12/2015	10.5
10.45	Development and Manufacturing Services Agreement, dated April 15, 2014, by and between MabVax Therapeutics, Inc. and Gallus BioPharmaceuticals NJ, LLC	10-Q/A	8/12/2015	10.6
10.46	Exclusive License Agreement for "Polyvalent Conjugate Vaccines for Cancer" (SK#14491), dated as of June 30, 2008, by and between MabVax Therapeutics, Inc. and Sloan-Kettering Institute for Cancer Research	10-Q/A	8/12/2015	10.7
10.47	Research and License Agreement, dated as of April 7, 2008, by and between MabVax Therapeutics, Inc. and Sloan-Kettering Institute for Cancer Research	10-Q/A	8/12/2015	10.8
10.48	Exclusive License to Unimolecular Antibodies, dated October 13, 2011, by and between MabVax Therapeutics, Inc. and Sloan-Kettering Institute for Cancer Research	10-Q/A	8/12/2015	10.9
10.49	Option Agreement, dated August 29, 2014, by and between MabVax Therapeutics, Inc. and Juno Therapeutics, Inc.	10-Q/A	8/12/2015	10.10
10.50	SBIR Contract from National Cancer Institute	10-Q/A	8/12/2015	10.11
10.51	Lease by and between AGP Sorrento Business Complex, L.P., and MabVax Therapeutics Holdings, Inc., dated as of September 2, 2015	8-K	9/3/2015	10.1
10.52	Form of Amendment Agreement No.3 to Registration Rights Agreement	8-K	10/13/2015	10.1
10.53	Loan and Security Agreement dated as of January 15, 2016	8-K	1/19/2016	10.1
10.54	Form of Amendment Agreement by and between MabVax Therapeutics, Inc. and Southern Biotech, Inc.	10-K	3/14/2016	10.54
10.55	Consulting Agreement between MabVax Therapeutics, Inc. and Jeffrey V. Ravetch, dated as of January 1, 2016	8-K	4/7/2016	10.1
10.56	Employment Agreement between MabVax Therapeutics, Inc. and Paul F. Resnick dated as of March 16, 2016	8-K	4/15/2016	10.1
11.1	Statement of per share earnings	S-1	9/29/2014	11.1
21.1	Subsidiaries of the Registrant	S-1	9/29/2014	21.1
23.1*	Consent of Independent Registered Public Accounting Firm			
31.1*	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002			
31.2*	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002			
32.1*	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002			
32.2 *	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002			
101*	Interactive data file			

* Filed herewith

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.

Date: March 1, 2017

MABVAX THERAPEUTICS HOLDINGS, INC

By: /s/ J. David Hansen
J. David Hansen
President and Chief Executive Officer (Principal executive officer)

By: /s/ Gregory P. Hanson
Gregory P. Hanson
Chief Financial Officer (Principal financial and accounting officer)

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. David Hansen J. David Hansen	Chairman of the Board, President and Chief Executive Officer (Principal executive officer)	March 1, 2017
/s/ Gregory P. Hanson Gregory P. Hanson	Chief Financial Officer (Principal financial and accounting officer)	March 1, 2017
/s/ Kenneth M. Cohen Kenneth M. Cohen	Director	March 1, 2017
/s/ Jeffrey F. Eisenberg Jeffrey F. Eisenberg	Director	March 1, 2017
/s/ Robert E. Hoffman Robert E. Hoffman	Director	March 1, 2017
/s/ Philip O. Livingston Philip O. Livingston, M.D.	Director	March 1, 2017
/s/ Paul V. Maier Paul V. Maier	Director	March 1, 2017
/s/ Jeffrey V. Ravetch Jeffrey V. Ravetch, M.D., Ph.D.	Director	March 1, 2017
/s/ Thomas C. Varvaro Thomas C. Varvaro	Director	March 1, 2017

MABVAX THERAPEUTICS HOLDINGS, INC.
INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders
MabVax Therapeutics Holdings, Inc.

We have audited the accompanying consolidated balance sheets of MabVax Therapeutics Holdings, Inc. (the "Company") as of December 31, 2016 and 2015, and the related consolidated statements of operations, redeemable convertible preferred stock, convertible preferred stock and stockholders' equity, and cash flows for the years then ended. MabVax Therapeutics Holdings, Inc.'s management is responsible for these consolidated financial statements. Our responsibility is to express an opinion on these consolidated 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. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, 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 consolidated financial statements referred to above present fairly, in all material respects, the financial position of MabVax Therapeutics Holdings, Inc. as of December 31, 2016 and 2015, and the results of its operations and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has incurred recurring operating losses and is dependent on additional financing to fund operations. These conditions raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are described in Note 1 to the consolidated financial statements. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

/s/ CohnReznick LLP

San Diego, California
March 1, 2017

MABVAX THERAPEUTICS HOLDINGS, INC.
Consolidated Balance Sheets

	December 31, 2016	December 31, 2015
Assets		
Current assets:		
Cash and cash equivalents	$ 3,979,290	$ 4,084,085
Grants receivable	—	757,562
Prepaid expenses	281,858	419,751
Other current assets	32,830	47,586
Total current assets	4,293,978	5,308,984
Property and equipment, net	731,712	135,486
Goodwill	6,826,003	6,826,003
Other long-term assets	168,597	126,654
Total assets	$ 12,020,290	$ 12,397,127
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 1,137,903	$ 3,002,497
Accrued compensation	770,592	562,755
Accrued clinical operations and site costs	1,218,641	391,041
Accrued lease contingency fee	590,504	590,504
Other accrued expenses	315,034	411,566
Interest payable	51,295	—
Current portion of notes payable	1,589,661	—
Current portion of capital lease payable	17,004	—
Total current liabilities	5,690,634	4,958,363
Long-term liabilities:		
Long-term portion of notes payable, net	2,774,627	—
Long-term portion of capital lease payable	68,113	—
Other long-term liabilities	144,394	—
Total long-term liabilities	2,987,134	—
Total liabilities	8,677,768	4,958,363
Commitments and contingencies		
Stockholders' equity:		
Series D convertible preferred stock, $0.01 par value, 1,000,000 shares authorized, 132,489 and 191,490 shares issued and outstanding as of December 31, 2016 and 2015, respectively, with liquidation preference of $1,325 and $1,915 as of December 31, 2016 and 2015, respectively	1,325	1,915
Series E convertible preferred stock, $0.01 par value, 100,000 shares authorized, 33,333 shares issued and outstanding as of December 31, 2016 and 2015, with a liquidation preference of $333 as of December 31, 2016 and 2015	333	333
Series F convertible preferred stock, $0.01 par value, 1,559,252 shares authorized, 665,281 shares and none issued and outstanding, with a liquidation preference of $6,653 and none as of December 31, 2016 and 2015, respectively	6,653	—
Common stock, $0.01 par value; 150,000,000 shares authorized, 6,296,110 and 3,836,631 shares issued and outstanding as of December 31, 2016 and 2015, respectively	62,961	38,366
Additional paid-in capital	81,533,511	67,999,928
Accumulated deficit	(78,262,261)	(60,601,778)
Total stockholders' equity	3,342,522	7,438,764
Total liabilities and stockholders' equity	$ 12,020,290	$ 12,397,127

See Accompanying Notes to Consolidated Financial Statements.

MABVAX THERAPEUTICS HOLDINGS, INC.
Consolidated Statements of Operations

	For the Years Ended December 31,	
	2016	**2015**
Revenues:		
Grants	$ 148,054	$ 1,267,036
Total revenues	148,054	1,267,036
Operating costs and expenses:		
Research and development	7,800,723	9,596,768
General and administrative	9,010,450	9,795,163
Total operating costs and expenses	16,811,173	19,391,931
Loss from operations	(16,663,119)	(18,124,895)
Interest and other expenses, net of income	(997,364)	(227)
Change in fair value of warrant liability	—	19,807
Net loss	(17,660,483)	(18,105,315)
Deemed dividend on Series A-1 preferred stock	—	(9,017,512)
Deemed dividend on Series A-1 warrant	—	(179,411)
Deemed dividend on Series B preferred stock	—	(8,655,998)
Accretion of preferred stock dividends	—	(93,234)
Net loss allocable to common stockholders	$ (17,660,483)	$ (36,051,470)
Basic and diluted net loss per share	$ (3.64)	$ (13.44)
Shares used to calculate basic and diluted net loss per share	4,857,753	2,681,740

See Accompanying Notes to Consolidated Financial Statements.

MABVAX THERAPEUTICS HOLDINGS, INC.
Consolidated Statements of Redeemable Convertible Preferred Stock, Convertible Preferred Stock and Stockholders' Equity

	Redeemable Convertible Preferred Stock			Convertible Preferred Stock			
	MabVax Series B			MabVax Series A-1		MabVax Series C	
	Shares	Amount	Total	Shares	Amount	Shares	Amount
Balance at December 31, 2014	**$ 1,250,000**	**$ 1,838,025**	**1,838,025**	**1,593,389**	**$ 4,029,576**	**96,571**	**$ 966**
Conversion of Series A-1 into common stock on January 10 and February 25, 2015	—	—	—	(64,019)	(162,968)	—	—
Conversion of Series C into common stock on January 10, 2015	—	—	—	—	—	(96,571)	(966)
Conversion of Series B into common stock between March 3 and March 20, 2015	(106,437)	(160,380)	(160,380)	—	—		—
Accretion of redemption value for Series A-1 from January 1 to March 25, 2015	—	—	—	—	47,749		—
Accretion of redemption value for Series B from January 1 to March 25, 2015	—	45,485	45,485	—	—		—
Deemed dividend related to exchange of common stock for Series A-1, Series A-1 Warrants, and Series B on March 25, 2015	—	8,655,998	8,655,998	—	9,196.923		—
Exchange of Series A-1 and Series A-1 Warrants into common and Series D on March 25, 2015	—	—	—	(1,529,370)	(13,111,280)		—
Exchange of Series B into Common and Series D on March 25, 2015	(1,143,563)	(10,379,128)	(10,379,128)	—	—		—
Private Placement Issuance of 900,136 shares at $5.55 per share, net of issuance costs of $281,023 on March 31, 2015	—	—	—	—	—		—
Issuance of additional common stock in March 2015 under common stock Purchase Agreement in relation to financing on July 7, 2014	—	—	—	—	—		—
Private Placement Issuance of 760,135 shares at $5.55 per share, net of issuance costs of $387,127 on April 10, 2015	—	—	—	—	—		—
Private Placement Issuance of 33,333 shares at $75 per share of Series E Preferred Stock on April 10, 2015	—	—	—	—	—		—
Issuance of restricted common stock in April 2015 for services	—	—	—	—	—		—
Issuance of restricted common stock to former board member on April 3, 2015 upon termination	—	—	—	—	—		—
Conversion of Series D Preferred Stock to common stock	—	—	—	—	—		—
Stock option exercise	—	—	—	—	—		—
Shares issued in connection with exercise of warrants on a cashless basis	—	—	—	—	—		—
Elimination of warrant liability in exchange transaction	—	—	—	—	—		—
Stock-based compensation	—	—	—	—	—		—

Net loss	—	—	—	—	—		—

See Accompanying Notes to Consolidated Financial Statements.

MABVAX THERAPEUTICS HOLDINGS, INC.
Consolidated Statements of Redeemable Convertible Preferred Stock, Convertible Preferred Stock and Stockholders' Equity

	Redeemable Convertible Preferred Stock			Convertible Preferred Stock			
	MabVax Series B			MabVax Series A-1		MabVax Series C	
	Shares	Amount	Total	Shares	Amount	Shares	Amount
Balance at December 31, 2015	—	$ —	$ —	—	$ —	—	$ —
Issuance of warrants in connection with note payable transaction on January 15, 2016	—	—	—	—	—		—
Issuance of whole in lieu of fractional shares resulting from reverse split in August 2016	—	—	—	—	—		—
Issuance of Series F convertible preferred stock, warrants and common stock in August public offering, net of $871,305 in issuance costs	—	—	—	—	—		—
Issuance of additional common stock related to April 2015 financing	—	—	—	—	—		—
Stock issued for services	—	—	—	—	—		—
Conversion of Series D Preferred Stock to common stock	—	—	—	—	—		—
Stock issued upon vesting of restricted stock units in April, July and August of 2016, net of payroll taxes	—	—	—	—	—		—
Stock-based compensation	—	—	—	—	—		—
Net loss	—	—	—	—	—		—
Balance at December 31, 2016	—	$ —	—	$ —	—		$ —

See Accompanying Notes to Consolidated Financial Statements.

MABVAX THERAPEUTICS HOLDINGS, INC.
Consolidated Statements of Redeemable Convertible Preferred Stock, Convertible Preferred Stock and Stockholders' Equity
Total Stockholders' Equity

	Series D, E & F Convertible Preferred Stock		Common Stock		Additional Paid-in	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Capital	Deficit	Equity
Balance at December 31, 2014	**—**	**—**	**378,766**	**3,787**	**24,516,692**	**(24,550,308)**	**4,000,713**
Conversion of Series A-1 into common stock on January 10 and February 25, 2015	—	—	5,197	52	162,916	—	—
Conversion of Series C into common stock on January 10, 2015	—	—	16,313	163	803	—	—
Conversion of Series B into common stock between March 3 and March 20, 2015	—	—	37,416	374	160,006	—	160,380
Accretion of redemption value for Series A-1 from January 1 to March 25, 2015	—	—	—	—	—	(47,749)	—
Accretion of redemption value for Series B from January 1 to March 25, 2015	—	—	—	—	—	(45,485)	(45,485)
Deemed dividend related to exchange of common stock for Series A-1, Series A-1 Warrants, and Series B on March 25, 2015	—	—	—	—	—	(17,852,921)	(8,655,998)
Exchange of Series A-1 and Series A-1 Warrants into common and Series D on March 25, 2015	117,582	1,176	299,108	2,991	13,107,113	—	—
Exchange of Series B into common and Series D on March 25, 2015	120,573	1,206	43,797	438	10,377,484	—	10,379,128
Private Placement Issuance of 900,135 shares at $5.55 per share, net of issuance costs of $281,023 on March 31, 2015	—	—	900,135	9,001	4,705,525	—	4,714,726
Issuance of additional common stock in March 2015 under common stock Purchase Agreement in relation to financing on July 7, 2014	—	—	11,904	119	(119)	—	—
Private Placement Issuance of 760,135 shares at $5.55 per share, net of issuance costs of $387,127 on April 10, 2015	—	—	760,135	7,601	3,824,021	—	3,831,622
Private Placement Issuance of 33,333 shares at $75 per share of Series E Preferred Stock on April 10, 2015	33,333	333	—	—	2,499,667	—	2,500,000
Issuance of restricted common stock in April 2015 for services	—	—	247,500	2,476	1,909,974	—	1,912,450
Issuance of restricted common stock to former board member on April 3, 2015 upon termination	—	—	2,703	27	45,973	—	46,000
Conversion of Series D Preferred Stock to common stock	(46,665)	(467)	630,608	6,306	(5,839)	—	—
Stock option exercise	—	—	376	4	796	—	800
Shares issued in connection with exercise of warrants on a cashless basis	—	—	164,835	1,648	(1,648)	—	—
Elimination of warrant liability in exchange transaction	—	—	—	—	72,656	—	72,656
Issuance of shares in registered							

offering in October 2015, net of issuance costs	—	—	337,838	3,379	2,160,013	—	2,163,392
Stock-based compensation	—	—	—	—	4,463,695	—	4,463,695
Net loss	—	—	—	—	—	(18,105,315)	(18,105,315)

See Accompanying Notes to Consolidated Financial Statements.

MABVAX THERAPEUTICS HOLDINGS, INC.
Consolidated Statements of Redeemable Convertible Preferred Stock, Convertible Preferred Stock and Stockholders' Equity

	Series D, E & F Convertible Preferred Stock		Common Stock		Additional Paid-in	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Capital	Deficit	Equity
Balance at December 31, 2015	**224,823**	**2,248**	**3,836,631**	**38,366**	**67,999,928**	**(60,601,778)**	**7,438,764**
Issuance of warrants in connection with note payable transaction on January 15, 2016	—	—	—	—	607,338	—	607,338
Issuance of whole in lieu of fractional shares resulting from reverse split in August 2016	—	—	2,426	24	(24)	—	—
Issuance of Series F convertible preferred stock, warrants and common stock in August public offering, net of $871,305 in issuance costs	665,281	6,653	1,297,038	12,970	8,547,825	—	8,567,448
Issuance of additional common stock related to April 2015 financing	—	—	255,459	2,555	(2,555)	—	—
Stock issued for services	—	—	35,644	356	163,644	—	164,000
Conversion of Series D Preferred Stock to common stock	(59,001)	(590)	797,312	7,974	(7,384)	—	—
Stock issued upon vesting of restricted stock units in April, July and August of 2016, net of payroll taxes	—	—	71,600	716	(178,539)	—	(177,823)
Stock-based compensation	—	—	—	—	4,403,278	—	4,403,278
Net loss	—	—	—	—	—	(17,660,483)	(17,660,483)
Balance at December 31, 2016	**831,103**	**$ 8,311**	**6,296,110**	**$ 62,961**	**$81,533,511**	**$(78,262,261)**	**$ 3,342,522**

See Accompanying Notes to Consolidated Financial Statements.

MABVAX THERAPEUTICS HOLDINGS, INC.
Consolidated Statements of Cash Flows

	For the Years Ended December 31,	
	2016	2015
Operating activities		
Net loss	$ (17,660,483)	$ (18,105,315)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	96,553	21,360
Stock-based compensation	4,403,278	4,463,695
Change in fair value of warrants	—	(19,807)
Issuance of restricted common stock for services	164,000	1,958,450
Amortization and accretion related to notes payable	413,676	—
Increase (decrease) in operating assets and liabilities:		
Grants receivable	757,562	(673,218)
Other receivables	—	2,275
Prepaid expenses and other	340,187	(199,377)
Accounts payable	(1,898,520)	1,631,305
Accrued clinical operations and site costs	827,600	(103,069)
Accrued compensation	207,837	332,374
Other accrued expenses	(15,101)	166,145
Net cash used in operating activities	(12,363,411)	(10,525,182)
Investing activities		
Purchases of property and equipment	(563,196)	(78,416)
Net cash used in investing activities	(563,196)	(78,416)
Financing activities		
Issuances of preferred stock, net of issuance costs	—	2,500,000
Proceeds from exercise of stock options	—	800
Principal payments on financed insurance policies	(167,597)	—
Principal payments on capital lease	(10,540)	—
Purchase of vested employee stock in connection with tax withholding obligation	(177,823)	—
Cash receipts from bank loan, net of financing costs	4,610,324	—
Proceeds from issuance of preferred stock, common stock and warrants, net of issuance costs	8,567,448	10,709,740
Net cash provided by financing activities	12,821,812	13,210,540
Net change in cash and cash equivalents	(104,795)	2,606,942
Cash and cash equivalents at beginning of year	4,084,085	1,477,143
Cash and cash equivalents at end of year	$ 3,979,290	$ 4,084,085
Supplemental disclosures of cash flow information:		
Cash paid during the year for income taxes	$ 24,626	$ 1,600
Supplemental disclosures of non-cash investing and financing information:		
Deemed dividend on beneficial conversion feature for preferred stock	$ —	$ 17,852,921
Capital lease in connection with purchase of equipment	$ 95,657	$ —
Fair value of warrants issued	$ 607,338	$ —
Accretion of redemption value for Series A-1 and B preferred stock	$ —	$ 93,234
Conversion of Series B redeemable preferred stock into common stock	$ —	$ 160,380
Conversion of Series D preferred stock into common stock	$ 7,974	$ 6,306
Conversion of Series A-1 preferred stock into common stock	$ —	$ 162,968
Exchange of Series A-1 preferred stock and warrants to common stock and Series D convertible preferred stock	$ —	$ 13,111,280
Exchange of Series B preferred stock and warrants to common stock and Series D convertible preferred stock	$ —	$ 10,451,784
Warrants exercised to purchase common stock on a cashless basis	$ —	$ 12,198
Elimination of warrant liability in exchange transaction	$ —	$ 72,656
Financing transaction not yet paid	$ —	$ 36,570
Conversion of Series C preferred stock to common stock	$ —	$ 966
Property and equipment accrued in accounts payable	$ 33,934	$ 21,376

See Accompanying Notes to Consolidated Financial Statements.

MABVAX THERAPEUTICS HOLDINGS, INC.
Notes to Consolidated Financial Statements

1. Nature of Operations and Basis of Presentation

MabVax Therapeutics Holdings, Inc. (f.k.a. Telik, Inc. and referred to herein as "MabVax Therapeutics Holdings" or the "Company") (NASDAQ: MBVX) was incorporated in the state of Delaware on October 20, 1988. On July 8, 2014, Tacoma Acquisition Corp., a Delaware corporation and wholly owned subsidiary of MabVax Therapeutics Holdings ("Tacoma Corp.") merged with MabVax Therapeutics, Inc., a Delaware corporation ("MabVax Therapeutics") pursuant to an Agreement and Plan of Merger, dated May 12, 2014, by and among MabVax Therapeutics Holdings, Tacoma Corp. and MabVax Therapeutics, as amended by that certain Amendment No. 1 to the Merger Agreement, dated June 30, 2014, by and among the parties thereto and by that certain Amendment No. 2 to the Merger Agreement, dated July 7, 2014, by and among the parties thereto (such agreement as amended, the "Merger Agreement"; such Merger, the "Merger"). Unless the context otherwise requires, references to "we," "our," "us," or the "Company" in this Annual Report mean MabVax Therapeutics Holdings, Inc. on a consolidated financial statement basis with our wholly owned subsidiary following the Merger, MabVax Therapeutics, as applicable. On October 9, 2014, the Financial Industry Regulatory Authority (FINRA) approved the Company's stock symbol change request and the Company began trading on the OTCQB under the symbol MBVX on October 10, 2014. On August 17, 2016, our common stock began trading on The NASDAQ Capital Market under the symbol "MBVX."

On August 16, 2016, we filed a certificate of amendment to our Amended and Restated Certificate of Incorporation with the Secretary of State of the State of Delaware in order to effectuate a reverse stock split of our issued and outstanding common stock on a 1 for 7.4 basis, effective on August 16, 2016 (the "Reverse Stock Split"). The Reverse Stock Split was effective with FINRA and the Company's common stock began trading on The NASDAQ Capital Market at the open of business on August 17, 2016. All share and per share amounts, and number of shares of common stock into which each share of preferred stock will convert, in the financial statements and notes hereto have been retroactively adjusted for all periods presented to give effect to the Reverse Stock Split, including reclassifying an amount equal to the reduction in par value of common stock to additional paid-in capital.

The Company is a clinical stage biopharmaceutical company engaged in the discovery, development and commercialization of proprietary human monoclonal antibody products and vaccines for the treatment of a variety of cancers. The Company has discovered a pipeline of human monoclonal antibody products based on the protective immune responses generated by patients who have been immunized against targeted cancers. Therapeutic vaccines under development were discovered at Memorial Sloan Kettering Cancer Center ("MSK") and are exclusively licensed to MabVax Therapeutics. The Company operates in only one business segment.

The Company has incurred net losses since inception and expects to incur substantial losses for the foreseeable future as it continues its research and development activities. To date, the Company has funded operations primarily through government grants, the sale of preferred stock and equity securities, debt financing, non-equity payments from collaborators and interest income. The process of developing products will require significant additional research and development, preclinical testing and clinical trials, as well as regulatory approvals. The Company expects these activities, together with general and administrative expenses, to result in substantial operating losses for the foreseeable future. The Company will not receive substantial revenue unless the Company or its collaborative partners complete clinical trials, obtain regulatory approvals and successfully commercialize one or more products; or the Company licenses its technology after achieving one or more milestones of interest to a potential partner.

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of expenses during the reporting period. Management believes that these estimates are reasonable; however, actual results may differ from these estimates.

Liquidity and Going Concern

The accompanying consolidated financial statements have been prepared on the going concern basis, which assumes that the Company will continue to operate as a going concern and which contemplates the realization of assets and the satisfaction of liabilities and commitments in the normal course of business. As reflected in the accompanying consolidated financial statements, the Company had a net loss of $17,660,483, net cash used in operating activities of $12,363,411 and net cash used in investing activities of $563,196 for the year ended December 31, 2016. As of December 31, 2016, the Company had $3,979,290 in cash and cash equivalents and an accumulated deficit of $78,262,261.

On January 15, 2016, the Company and Oxford Finance LLC, as collateral agent and lender, entered into a loan and security agreement (the "Loan Agreement") providing for senior secured term loans to the Company in an aggregate principal amount of up to $10,000,000, subject to the terms and conditions set forth in the Loan Agreement (the "January 2016 Term Loan"). On January 15, 2016, the Company received an initial loan of $5,000,000 under the Loan Agreement, before fees and issuance costs of approximately $390,000.

On August 22, 2016, we closed a public offering of 1,297,038 shares of common stock and 665,281 shares of Series F Preferred Stock, and warrants to purchase 1,962,319 shares of common stock at $5.55 per share and warrants to purchase 1,962,319 shares of common stock at $6.29 per share, at an offering price of $4.81 per share (the "August 2016 Public Offering"). For every one share of common stock or Series F Preferred Stock sold, we issued one warrant to purchase one share of common stock at $5.55 per share and one warrant to purchase one share of common stock at $6.29 per share. We received $9,438,753 in gross proceeds, before underwriting discounts and commissions and offering expenses totaling $871,305. The gross proceeds include the underwriters' over-allotment option, which they exercised on the closing date.

We anticipate that the Company will continue to incur net losses into the foreseeable future as we: (i) continue our Phase I clinical trial for our standalone therapeutic HuMab 5b-1, designated as MVT-5873 that was initiated in the first quarter of 2016; (ii) continue our Positron Emission Tomography ("PET") imaging agent 89Zr-HuMab-5B1, designated as MVT-2163 that was initiated in July 2016; (iii) initiate our clinical trial for the development of our HuMab-based radioimmunotherapy product, designated as MVT-1075; (iv) continue preclinical work on several other programs; and (iv) continue operations as a public company. Management believes that the Company has sufficient funds to meet its obligations through April 2017. These conditions give rise to substantial doubt as to the Company's ability to continue as a going concern. The accompanying consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

We plan to continue to fund the Company's losses from operations and capital funding needs through equity or debt financings, strategic collaborations, licensing arrangements, government grants or other arrangements. However, we cannot be sure that such additional funds will be available on reasonable terms, or at all. If we are unable to secure adequate additional funding, we may be forced to make reductions in spending, extend payment terms with suppliers, liquidate assets where possible, and/or suspend or curtail planned programs. In addition, if the Company does not meet its payment obligations to third parties as they come due, it may be subject to litigation claims. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management. Any of these actions could materially harm the Company's business, results of operations, and future prospects.

If the Company raises additional funds by issuing equity securities, substantial dilution to existing stockholders would result. If the Company raises additional funds by incurring debt financing, the terms of the debt may involve significant cash payment obligations as well as covenants and specific financial ratios that may restrict the Company's ability to operate its business.

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying consolidated financial statements reflect all of our activities, including those of our wholly owned subsidiaries. All material intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of expenses during the reporting period. Management believes that these estimates are reasonable; however, actual results may differ from these estimates.

Cash and Cash Equivalents

We consider all highly liquid investments purchased with original maturities of three months or less to be cash equivalents. The Company minimizes its credit risk associated with cash and cash equivalents by periodically evaluating the credit quality of its primary financial institution. The balance at times may exceed federally insured limits. As of December 31, 2016, cash and cash equivalents exceeded federally insured limits by approximately $3.7 million. The Company has not experienced any losses on such accounts.

Fair Value of Financial Instruments

The Company's financial instruments consist of cash and cash equivalents, grants receivable, other receivable, accounts payable, all of which are generally considered to be representative of their respective fair values because of the short-term nature of those instruments.

Grants Receivable

Grants receivable at December 31, 2015 represented amounts due under the NIH Imaging Contract Phase II with the National Cancer Institute (the "NCI"), a division of the National Institutes of Health, or NIH (collectively, the "NIH Grants"). The Company considers the grants receivable to be fully collectible; accordingly, no allowance for doubtful accounts has been established. Grants receivable balances may include unbilled amounts for which work was completed by the Company as of the balance sheet date. If amounts become uncollectible, they are charged to operations. There were no grant receivable amounts outstanding as of December 31, 2016,

Property and Equipment

Property and equipment are carried at cost less accumulated depreciation. Depreciation of property and equipment is computed using the straight-line method over the estimated useful lives of the assets, which are generally three to seven years. Leasehold improvements are amortized over the lesser of the life of the lease or the life of the asset.

Impairment of Long-lived Assets

We evaluate the Company's long-lived assets with definite lives, such as property and equipment, for impairment. We record impairment losses on long-lived assets used for operations when indicators of impairment are present and the undiscounted cash flows estimated to be generated by those assets are less than the carrying value of the assets. There have not been any impairment losses of long-lived assets for the years ended December 31, 2016 and 2015.

Impairment of Goodwill

The Company applies the GAAP principles related to Intangibles – Goodwill and Other related to performing a test for goodwill impairment annually. For the years ended December 31, 2016 and 2015, the Company performed a step 1 analysis and assessed the market value of the Company to determine whether an impairment had taken place. Based upon the analysis performed no impairment was noted, therefore performing step 2 was not required. The Company has concluded that no impairment of Goodwill has taken place for the years ended December 31, 2016 and 2015. Further, in performing a qualitative assessment, the Company concluded no events and circumstances have taken place that would have indicated that an impairment had taken place.

Revenue Recognition

Revenue from grants is based upon internal and subcontractor costs incurred that are specifically covered by the grant, including a facilities and administrative rate that provides funding for overhead expenses. NIH Grants are recognized when the Company incurs internal expenses that are specifically related to each grant, in clinical trials at the clinical trial sites, by subcontractors who manage the clinical trials, and provided the grant has been approved for payment. The Company records revenue associated with the NIH Grants as the related costs and expenses are incurred. Any amounts received by the Company pursuant to the NIH Grants prior to satisfying the Company's revenue recognition criteria are recorded as deferred revenue.

Research and Development Costs

Research and development expenses, which consist primarily of salaries and other personnel costs, clinical trial costs and preclinical study fees, manufacturing costs for non-commercial products, and the development of earlier-stage programs and technologies, are expensed as incurred when these expenditures have no alternative future uses. A significant portion of the development activities are outsourced to third parties, including contract research organizations. In such cases, the Company may be required to estimate related service fees incurred.

Stock-based Compensation

The Company's stock-based compensation programs include grants of common stock and stock options to employees, non-employee directors and non-employee consultants. Stock-based compensation cost is measured at the grant date, based on the calculated fair value of the award, and is recognized as an expense, under the straight-line method, over the employee's requisite service period (generally the vesting period of the equity grant).

The Company accounts for equity instruments, including common stock and stock options, issued to non-employees in accordance with authoritative guidance for equity based payments to non-employees. Stock options issued to non-employees are accounted for at their estimated fair value determined using the Black-Scholes-Merton option-pricing model. The fair value of options granted to non-employees is re-measured as they vest, and the resulting increase in value, if any, is recognized as expense during the period the related services are rendered.

Income Taxes

The Company uses the asset and liability method of accounting for income taxes. Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to basis differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized. As of December 31, 2016 and 2015, all deferred tax assets were fully offset by a valuation allowance.

The Company accrues interest and penalties, if any, on underpayment of income taxes related to unrecognized tax benefits as a component of income tax expense in its consolidated statements of operations.

Fair Value Measurements

Level 1 fair value inputs are quoted prices for identical items in active, liquid and visible markets such as stock exchanges. Level 2 fair value inputs are observable information for similar items in active or inactive markets, and appropriately consider counterparty creditworthiness in the valuations. Level 3 fair value inputs reflect our best estimate of inputs and assumptions market participants would use in pricing an asset or liability at the measurement date. The inputs are unobservable in the market and significant to the valuation estimate.

3. Recent Accounting Pronouncements

In November 2015, the FASB issued Accounting Standards Update No. 2015-17, Income Taxes. Current GAAP requires an entity to separate deferred income tax liabilities and assets into current and noncurrent amounts in a classified balance sheet. The new standard simplifies the presentation of deferred tax assets and liabilities and requires that deferred tax assets and liabilities be classified as noncurrent in a classified balance sheet. This ASU is effective for financial statements issued for fiscal years beginning after December 15, 2015, with early adoption permitted. This ASU affected our disclosures relating to deferred tax assets and liabilities. The Company has applied this guidance prospectively and it did not have a material impact on the consolidated balance sheets.

In February 2016, the FASB issued ASU 2016-2,"Leases (Topic 842)." This update will increase transparency and comparability by recognizing lease assets and lease liabilities on the balance sheet and disclosing key information about leasing arrangements. Under the new guidance, lessees will be required to recognize the following for all leases (with the exception of short-term leases) at the commencement date (i) a lease liability, which is a lessee's obligation to make lease payments arising from a lease, measured on a discounted basis; and (ii) a right-of-use asset, which is an asset that represents the lessee's right to use, or control the use of, a specified asset for the lease term. Under the new guidance, lessor accounting is largely unchanged, and it simplified the accounting for sale and leaseback transactions. Lessees will no longer be provided with a source of off-balance sheet financing. Lessees (for capital and operating leases) and lessors (for sales-type, direct financing, and operating leases) must apply a modified retrospective transition approach for leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements. The modified retrospective approach would not require any transition accounting for leases that expired before the earliest comparative period presented. Lessees and lessors may not apply a full retrospective transition approach. The standard is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. We are currently in the process of assessing what impact this new standard may have on our consolidated financial statements.

In March 2016, the FASB issued ASU 2016-09, "Compensation—Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting." This update includes multiple provisions intended to simplify various aspects of the accounting for share-based payment transactions including accounting for excess tax benefits and tax deficiencies, classification of excess tax benefits in the statement of cash flows and accounting for award forfeitures. This update is effective for annual and interim reporting periods of public entities beginning after December 15, 2016, with early adoption permitted. We do not expect the adoption of this new standard to have a material impact on our consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15 ("ASU 2016-15"), "Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments." The standard provides guidance on eight (8) cash flow issues: (1) debt prepayment or debt extinguishment costs; (2) settlement of zero-coupon bonds; (3) contingent consideration payments after a business combination; (4) proceeds from the settlement of insurance claims; (5) proceeds from the settlement of corporate-owned life insurance policies; (6) distributions received from equity method investees; (7) beneficial interests in securitization transactions; and (8) separately identifiable cash flows and application of the predominance principle. ASU 2016-15 addresses how certain cash receipts and cash payments are presented and classified in the statement of cash flows. ASU 2016-15 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017 with early adoption permitted. We do not expect the adoption of this new standard to have a material impact on our consolidated financial statements.

In August 2014, the FASB issued ASU No. 2014-15 ("ASU 2014-15"), "Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern." This standard provides guidance on management's responsibility in evaluating whether there is substantial doubt about a company's ability to continue as a going concern and to provide related footnote disclosures. ASU No. 2014-15 is effective for fiscal years ending after December 15, 2016 and for interim and annual periods therein with early adoption permitted. The adoption of this new standard did not have a material impact on our consolidated financial statements.

Management does not believe that any other recently issued, but not yet effective, accounting standards if currently adopted would have a material effect on the accompanying consolidated financial statements.

4. Property and Equipment, Net

Property and equipment consisted of the following as of December 31, 2016 and 2015:

	December 31,	
	2016	2015
Furniture and fixtures	$ 51,909	$ 8,979
Office equipment	52,547	52,547
Lab equipment	894,942	400,301
Capital lease equipment	95,657	—
Leasehold improvement	59,555	—
	1,154,610	461,827
Less accumulated depreciation and amortization	(422,898)	(326,341)
Totals	$ 731,712	$ 135,486

Depreciation expense for the years ended December 31, 2016 and 2015 was $96,553 and $21,360, respectively.

5. Reverse Stock Split

On August 16, 2016, we filed a certificate of amendment to our Amended and Restated Certificate of Incorporation with the Secretary of State of the State of Delaware in order to effectuate a reverse stock split of our issued and outstanding common stock on a 1 for 7.4 basis, effective on August 16, 2016 (the "Reverse Stock Split"). The Reverse Stock Split was effective with FINRA and the Company's common stock began trading on The NASDAQ Capital Market at the open of business on August 17, 2016. All share and per share amounts, and number of shares of common stock into which each share of preferred stock will convert, in the financial statements and notes hereto have been retroactively adjusted for all periods presented to give effect to the Reverse Stock Split, including reclassifying an amount equal to the reduction in par value of common stock to additional paid-in capital.

6. Notes Payable, Net

On January 15, 2016, we entered into a loan and security agreement with Oxford Finance LLC pursuant to which we had the option to borrow $10,000,000 in two equal tranches of $5,000,000 each (the "Loan Agreement"). The first tranche of $5,000,000 was funded at close on January 15, 2016 (the "Term A Loan"). The option to fund the second tranche of $5,000,000 (the "Term B Loan") was upon the Company achieving positive interim data on the Phase 1 HuMab-5B1 antibody trial in pancreatic cancer and successfully uplisting to either the NASDAQ Capital Market or NYSE MKT on or before September 30, 2016. The option for the Term B Loan expired on September 30, 2016. The Company is not pursuing completion of any additional debt financing with Oxford Finance LLC at the present time. The interest rate for the Term A Loan is set on a monthly basis at a rate equal to the greater of: the index rate plus 11.29%, where the index rate is the 30-day LIBOR rate; or 11.5%. Interest is due on the first day of each month, in arrears, calculated based on a 360-day year. The loan is interest only for the first year after funding, and the principal amount of the loan is amortized in equal principal payments, plus period interest, over the next 36 months. A facility fee of 1.0% or $100,000 was due at closing of the transaction, and was incurred and paid by the Company on January 15, 2016. The Company is obligated to pay a $150,000 final payment upon completion of the term of the loan, and this amount is being accreted using the effective interest rate method over the term of the loan. The amount being accreted is included in the long-term portion of notes payable, net, on the balance sheet Each of the term loans can be prepaid subject to a graduated prepayment fee, depending on the timing of the prepayment.

Concurrent with the closing of the transaction, the Company issued 225,226 common stock purchase warrants to Oxford Finance LLC with an exercise price of $5.55 per share. The warrants are exercisable for five years and may be exercised on a cashless basis, and expire on January 15, 2021. The Company recorded $607,338 for the fair value of the warrants as a debt discount within notes payable and an increase to additional paid-in capital on the Company's balance sheet. We used the Black-Scholes-Merton valuation method to calculate the value of the warrants. The debt discount is being amortized as interest expense over the term of the loan using the effective interest method.

We granted Oxford Finance LLC a perfected first priority lien on all of the Company's assets with a negative pledge on intellectual property. The Company paid Oxford Finance LLC a good faith deposit of $50,000, which was applied towards the facility fee at closing. The Company agreed to pay all costs, fees and expenses incurred by Oxford Finance LLC in the initiation and administration of the facilities including the cost of loan documentation.

At the initial funding, the Company received net proceeds of approximately $4,610,000 after fees and expenses. These fees and expenses are being accounted for as a debt discount and classified within notes payable on the Company's consolidated balance sheet as a direct deduction from the carrying amount of the notes payable, consistent with debt discounts. Debt discounts, issuance costs and the final payment are being amortized or accreted as interest expense over the term of the loan using the effective interest method.

The Loan Agreement also contains customary indemnification obligations and customary events of default, including, among other things, our failure to fulfill certain of the Company's obligations under the Loan Agreement, the occurrence of a material adverse change, which is defined as a material adverse change in the Company's business, operations, or condition (financial or otherwise), a material impairment of the prospect of repayment of any portion of the loan, or a material impairment in the perfection or priority of the Lenders' lien in the collateral or in the value of such collateral. In the event of default by the Company under the Loan Agreement, the Lenders would be entitled to exercise their remedies thereunder, including the right to accelerate payment of the debt, upon which we may be required to repay all amounts then outstanding under the Loan Agreement, which could harm the Company's financial condition.

The Company was in compliance with all applicable covenants set forth in the Loan Agreement as of December 31, 2016.

The Company recorded interest expense related to the term loan of $997,389 for the year ended December 31, 2016. The annual effective interest rate on the note payable, including the amortization of the debt discounts and accretion of the final payment, but excluding the warrant amortization, is approximately 12.4%.

As of December 31, 2016, the Company has one insurance premium note outstanding with a balance totaling $61,883, which matures in April 2017. This note bears interest at a rate of 4.5% per annum, and the monthly payments are $20,783.

Future principal payments under the Loan Agreement and insurance premium note as of December 31, 2016 are as follows:

Years ending December 31:	
2017	$ 1,589,661
2018	1,666,667
2019	1,666,667
2020	138,889
Notes payable, balance as of December 31, 2016	5,061,884
Unamortized discount on notes payable	(697,596)
Notes payable, net, balance as of December 31, 2016	4,364,288
Current portion of notes payable, net	(1,589,661)
Long-term portion of notes payable, net	$ 2,774,627

7. Redeemable Convertible Preferred Stock, Convertible Preferred Stock, Common Stock and Warrants

MabVax Therapeutics Holdings Series B Redeemable Convertible Preferred Stock and Warrants (Pre-Merger MabVax Therapeutics Issuances)

On May 12, 2014, MabVax Therapeutics Holdings entered into a securities purchase agreement with certain purchasers pursuant to which MabVax Therapeutics Holdings agreed to issue and sell, subject to customary closing conditions, an aggregate of 1,250,000 shares of MabVax Therapeutics Series B Preferred Stock and warrants (the "Series B Common Warrants") to purchase up to an additional 10,557 shares of MabVax Therapeutics Holdings common stock, with an aggregate purchase price of $2,500,000, or $2.00 for each share of our Series B Preferred Stock and related Series B Common Warrants.

As a result of the Series B Common Warrants' anti-dilution provision, the Series B Common Warrants were recorded as a current liability in the amount of $92,463 on our consolidated balance sheet as of December 31, 2014. On March 25, 2015, the Series B Common Warrants were re-valued at $72,656 prior to being exchanged into shares of common stock and Series D Preferred Stock and the warrant liability was eliminated and the Company recorded a gain of $19,807 for the year ended December 31, 2015.

The changes in the value of the warrant liability during the year ended December 31, 2015 were as follows:

Fair value – beginning of year	$ 92,463
Change in fair value	(19,807)
Cancellation of warrants	(72,656)
Fair value – end of year	$ —

At December 31, 2016 and 2015, there were no financial instruments requiring fair value measurement.

Dividends on Preferred Stock

The Company immediately recognizes the changes in the redemption value on preferred stock as they occur and the carrying value of the security is adjusted to equal what the redemption amount would be as if redemption were to occur at the end of the reporting period based on the conditions that exist as of that date. The value adjustment made to the redemption value and preferred stock dividends on the Series A-1 Preferred Stock and Series B Preferred Stock for the year ended December 31, 2016 and 2015, was an increase of none and $93,234, respectively.

Since the Company's inception, no dividends were ever declared or paid by the Company's Board of Directors on either of the Company's Series A Preferred Stock or Series B Preferred Stock.

Conversion of Preferred Stock into Common Stock

During quarter ended March 31, 2015, holders of Series A-1 Preferred Stock, Series B Preferred Stock, and Series C Preferred Stock converted 64,019, 106,437, and 96,571 shares into 5,197, 37,417, and 16,313 shares of common stock, respectively; such conversions eliminated all outstanding Series A-1 Preferred Stock, Series B Preferred Stock, and Series C Preferred Stock outstanding.

Exchange of Series A-1 Preferred Stock and Series B Preferred Stock and Warrants into Common Stock and Series D Preferred Stock

On March 25, 2015, the Company entered into separate exchange agreements with certain holders of the Company's Series A-1 Preferred Stock and Merger warrants (the "Series A-1 Exchange Securities") and holders of the Company's Series B Preferred Stock and Series B warrants (the "Series B Exchange Securities" and, collectively with the Series A-1 Exchange Securities, the "Exchange Securities"), all previously issued by the Company. Pursuant to the exchange agreements, the holders exchanged the Exchange Securities and relinquished any and all other rights they may have had pursuant to the Exchange Securities, their respective governing agreements and certificates of designation, including any related registration rights, in exchange for an aggregate of 342,906 shares of the Company's common stock and an aggregate of 238,156 shares of the Company's newly designated Series D Preferred Stock , convertible into 3,218,325 shares of common stock. No cash was exchanged in the transaction. The Company recorded deemed dividends of $9,017,512, $8,655,998 and $179,411 representing the excess fair value of the common stock issued over the original conversion terms of the Series A-1 Preferred Stock and B Preferred Stock as part of the consideration for elimination of the Series A-1 Preferred Stock, Series B Preferred Stock and Series A-1 warrant, respectively.

As of March 25, 2015, pursuant to the terms of the exchange agreements, the Series A-1 Purchase Agreement, dated February 12, 2014; the Series A-1 Registration Rights Agreement, dated February 12, 2014; the Series B Purchase Agreement, dated May 12, 2014; and the Series B Registration Rights Agreement, dated May 12, 2014; all of which have been described as part of the Company's annual report on Form 10-K, were terminated, and all rights covenants, agreements and obligations contained therein, are of no further force or effect.

No commission or other payment was received by the Company in connection with the exchange agreements.

Series D Preferred Stock

As of December 31, 2016, there were 132,489 shares of Series D Preferred Stock issued and outstanding that are convertible into an aggregate of 1,790,392 shares of common stock, as compared to 191,490 that were convertible into 2,587,703 shares of common stock as of December 31, 2015.

As contemplated by the exchange agreements and as approved by the Company's Board of Directors, the Company filed with the Secretary of State of the State of Delaware a Certificate of Designation of Preferences, Rights and Limitations of Series D Convertible Preferred Stock (the "Series D Certificate of Designations"), on March 25, 2015. Pursuant to the Series D Certificate of Designations, the Company designated 1,000,000 shares of its blank check preferred stock as Series D Preferred Stock. Each share of Series D Preferred Stock has a stated value of $0.01 per share. In the event of a liquidation, dissolution or winding up of the Company, each share of Series D Preferred Stock will be entitled to a per share preferential payment equal to the par value. Each share of Series D Preferred Stock is convertible into 13.5135 shares of common stock. The conversion ratio is subject to adjustment in the event of stock splits, stock dividends, combination of shares and similar recapitalization transactions. The Company is prohibited from effecting the conversion of the Series D Preferred Stock to the extent that, as a result of such conversion, the holder beneficially would own more than 4.99% (provided that certain investors elected to block their beneficial ownership initially at 2.49% in the exchange agreements), in the aggregate, of the issued and outstanding shares of the Company's common stock calculated immediately after giving effect to the issuance of shares of common stock upon the conversion of the Series D Preferred Stock. Each share of Series D Preferred Stock entitles the holder to vote on all matters voted on by holders of common stock. With respect to any such vote, each share of Series D Preferred Stock entitles the holder to cast such number of votes equal to the number of shares of common stock such shares of Series D Preferred Stock are convertible into at such time, but not in excess of the beneficial ownership limitations.

Series E Preferred Stock

As of December 31, 2016 and December 31, 2015, there were 33,333 shares of Series E Preferred Stock issued and outstanding, convertible into 519,751 and 450,446 shares of common stock, respectively.

On March 30, 2015, the Company filed with the Secretary of State of the State of Delaware a Certificate of Designation of Preferences, Rights and Limitations of Series E Convertible Preferred Stock (the "Series E Certificate of Designations") to designate 100,000 shares of its blank check preferred stock as Series E Preferred Stock.

The shares of Series E Preferred Stock are convertible into shares of common stock based on a conversion calculation equal to the stated value of such preferred share, plus all accrued and unpaid dividends, if any, on such share of Series E Preferred Stock, as of such date of determination, divided by the conversion price. The stated value of each share of Series E Preferred Stock is $75 and the initial conversion price is $5.55 per share, each subject to adjustment for stock splits, stock dividends, recapitalizations, combinations, subdivisions or other similar events. In addition, during the period proscribed for in the Series E Certificate of Designations, in the event the Company issues or sells, or is deemed to issue or sell, shares of common stock at a per share price that is less than the conversion price then in effect, the conversion price shall be reduced to such lower price, subject to certain exceptions. The Company is prohibited from effecting a conversion of the share of Series E Preferred Stock to the extent that, as a result of such conversion, such holder would beneficially own more than 4.99% of the number of shares of common stock outstanding immediately after giving effect to the issuance of shares of common stock upon conversion of the Series E Preferred Stock, which beneficial ownership limitation may be increased by the holder up to, but not exceeding, 9.99%. Each holder is entitled to vote on all matters submitted to stockholders of the Company, and shall have the number of votes equal to the number of shares of common stock issuable upon conversion of such holder's share of Series E Preferred Stock, but not in excess of beneficial ownership limitations. The shares of Series E Preferred Stock bear no interest.

On August 22, 2016, when the Company closed on the August 2016 Public Offering, the current Series E Preferred Stock conversion price of $5.55 per share was reduced to $4.81 per share under the terms of the Series E Certificate of Designations, resulting in an increase in the number of shares of common stock to 519,751 that the Series E Preferred Stock may be converted into. In the event of a liquidation, dissolution or winding up of the Company, each share of Series E preferred stock will be entitled to a per share preferential payment equal to the stated value. There is no further adjustment required by the Series E Certificate of Designations in the event of an offering of shares below $4.81 per share by the Company.

Series F Preferred Stock

As of December 31, 2016 and December 31, 2015, there were 665,281 and 0 shares of Series F Preferred Stock issued and outstanding, convertible into 665,281 and 0 shares of common stock, respectively. In the event of a liquidation, dissolution or winding up of the Company, each share of Series F Preferred Stock will be entitled to a per share preferential payment equal to the par value.

On August 16, 2016, we filed a Certificate of Designations, Preferences and Rights of the 0% Series F Convertible Preferred Stock with the Delaware Secretary of State, designating 1,559,252 shares of preferred stock as 0% Series F Preferred Stock.

The shares of Series F Preferred Stock are convertible into shares of common stock based on a conversion calculation equal to the stated value of such Series F Preferred Stock, plus all accrued and unpaid dividends, if any, on such Series F Preferred Stock, as of such date of determination, divided by the conversion price. The stated value of each share of Series F Preferred Stock is $4.81 and the initial conversion price is $4.81 per share, each subject to adjustment for stock splits, stock dividends, recapitalizations, combinations, subdivisions or other similar events. In the event of a liquidation, dissolution or winding up of the Company, each share of Series F Preferred Stock will be entitled to a per share preferential payment equal to the par value. All shares of the Company's capital stock will be junior in rank to Series F Preferred Stock with respect to the preferences as to dividends, distributions and payments upon the liquidation, dissolution and winding-up of the Company, except for the Company's Series D Preferred Stock and Series E Preferred Stock.

The holders of Series F Preferred Stock will be entitled to receive dividends if and when declared by our board of directors. The Series F Preferred Stock shall participate on an "as converted" basis, with all dividends declared on the Company's common stock. In addition, if we grant, issue or sell any rights to purchase our securities pro rata to all our record holders of our common stock, each holder will be entitled to acquire such securities applicable to the granted purchase rights as if the holder had held the number of shares of common stock acquirable upon complete conversion of all Series F Preferred Stock then held.

We are prohibited from effecting a conversion of the Series F Preferred Stock to the extent that, as a result of such conversion, the holder would beneficially own more than 4.99% of the number of shares of common stock outstanding immediately after giving effect to the issuance of shares of common stock upon conversion of the Series F Preferred Stock, which beneficial ownership limitation may be increased by the holder up to, but not exceeding, 9.99%. Each holder is entitled to vote on all matters submitted to stockholders of the Company, and shall have the number of votes equal to the number of shares of common stock issuable upon conversion of such holder's Series F Preferred Stock, but not in excess of the beneficial ownership limitations.

April 2015 Private Placement

On March 31, 2015, the Company consummated the first closing of a private offering (the "April 2015 Private Placement") and sold $4,714,726 worth of units (the "Unit(s)"), net of $281,023 in issuance costs. The Units consisted of 900,136 shares of common stock and warrants to purchase 450,068 shares of common stock with an exercise price of $11.10 per share. The Units were sold at a price of $5.55 per Unit.

On April 10, 2015, the Company consummated the second and final closing of the April 2015 Private Placement and sold $3,831,622 worth of Units, net of $387,127 in issuance costs, of which $2,500,000 of the Units consisted of Series E Preferred Stock and the balance of it consisting of 760,135 shares of common stock, together with warrants to all investors to purchase 605,293 shares of common stock at $11.10 per share. Each Unit was sold at a purchase price of $5.55 per Unit.

The Company paid commissions to broker-dealers in the aggregate amount of approximately $574,000 in the April 2015 Private Placement.

OPKO Health, Inc., or OPKO, was the lead investor in the April 2015 Private Placement, purchasing $2,500,000 worth of Units consisting of Series E Preferred Stock.

As a condition to OPKO's and Frost Gama Investment Trust's, or FGIT's, participation in the April 2015 Private Placement, each of the other investors in the April 2015 Private Placement agreed to execute lockup agreements restricting the sale of 50% of the securities underlying the Units purchased by them for a period of six months and the remaining 50% prior to the expiration of one year following the final closing date of the April 2015 Private Placement.

On April 10, 2015, the Company agreed that $3.5 million of the net proceeds of such closing would be paid into and held under the terms of an escrow agreement with Signature Bank, N.A. pending the approval of a representative of OPKO or 10 weeks thereafter, unless released sooner or extended by the Company and OPKO. On June 22, 2015, the Company and OPKO extended the termination date of the escrow to 16 weeks from the final closing of the April 2015 Private Placement. In connection with the OPKO investment, Steven Rubin, Esq. was appointed advisor to the Company. The escrowed funds were to be returned to the applicable investors and the Company shall have no further obligation to issue Units to such investors in the event certain release conditions are not met. On June 30, 2015, the Company and OPKO entered into a letter agreement pursuant to which the Company granted the representative the right, but not the obligation, until June 30, 2016, to nominate and appoint up to two additional members of the Company's Board of Directors, or to approve the person(s) nominated by the Company pursuant to the agreement in consideration for the release of the escrowed funds. The nominees will be subject to the satisfaction of standard corporate governance practices and any applicable national securities exchange requirements. Upon signing the agreement, the escrowed funds were released to the Company.

The warrants are exercisable upon issuance and expire October 10, 2017, and may be exercised for cash or on a cashless basis. The warrants have a per share exercise price of $11.10, subject to certain adjustments including stock splits, dividends and reverse-splits. The Company is prohibited from effecting the exercise of the warrants to the extent that, as a result of such exercise, the holder beneficially would own more than 4.99% in the aggregate, of the issued and outstanding shares of the Company's common stock calculated immediately after giving effect to the issuance of shares of common stock upon the exercise of the warrants.

In connection with the April 2015 Private Placement, the Company also entered into registration rights agreements (the "Registration Rights Agreements") with the investors in the April 2015 Private Placement pursuant to which the Company agreed to file a registration statement with the SEC covering the resale of 25% of common stock issued pursuant to the subscription agreements including 25% of the common stock issuable upon conversion of the Series E Preferred Stock, in the event the investors elect to receive Series E Preferred Stock instead of common stock (together, the "Registrable Securities"), no later than 60 days following the final closing date of the April 2015 Private Placement, and to use its commercially reasonable best efforts to have such registration statement declared effective within 120 days after filing. Investors in the April 2015 Private Placement also may be required under certain circumstances to agree to refrain from selling securities underlying the purchased Units. The liquidated damages for failure to achieve effectiveness of the Registerable Securities is 1% per month beginning 120 days after filing, and provided management has not used commercially reasonable best efforts to have the registration statement declared effective within that time frame.

On June 9, 2015, the Company and investors holding over 60% of the outstanding Registrable Securities entered into an amendment agreement to the Registration Rights Agreements in order to extend the filing date of the registration statement to waive any payments that may be due to the investors as a result of the Company not filing a registration statement on or before the original filing date. On August 4, 2015, the Company and investors holding over 70% of the outstanding Registrable Securities entered into a second amendment agreement to further extend the filing date to October 9, 2015.

On October 12, 2015, the Company and investors holding over 60% of the outstanding Registerable Securities entered into a third amendment agreement to the Registration Rights Agreements to suspend the Company's registration obligations under the Registration Rights Agreements and related subscription agreements during any period when the "standstill" provision set forth in the subscription agreements is in effect.

On January 28, 2016, the Company filed a Registration Statement on Form S-1, registering 527,680 shares of common stock for resale, including 112,613 shares of common stock, which are issuable upon conversion of the Company's Series E Preferred Stock issued in the April 2015 Private Placement.

Except for certain issuances, for a period beginning on the closing date of the April 2015 Private Placement and ending on the date that is the earlier of (i) 24 months from the final closing date of the April 2015 Private Placement, (ii) the date the Company consummates a financing (excluding proceeds from the April 2015 Private Placement) in which the Company receives gross proceeds of at least $10,000,000 and (iii) the date the common stock is listed for trading on a national securities exchange (such period until the earlier date, the "Price Protection Period"), in the event that the Company issues any shares of common stock or securities convertible into common stock at a price per share or conversion price or exercise price per share that is less than $5.55, the Company shall issue to the investors in the April 2015 Private Placement such additional number of shares of common stock such that the investor shall own an aggregate total number of shares of common stock as if they had purchased the Units at the price of the lower price issuance. No adjustment in the warrants is required in connection with a lower price issuance.

Effective with the Company's entry into an agreement with the underwriter for the Company's August 2016 Public Offering, which closed on August 22, 2016, the Company issued 255,459 shares of common stock to the holders of record of the shares purchased in the Company's April 2015 Private Placement under the Price Protection Period, representing the shares the investors would have received had they purchased their shares at $4.81 per share, instead of $5.55 per share. Effective August 17, 2016, the date of listing of the Company's stock on the Nasdaq Capital Market, the Price Protection Period came to an end.

The Company has also granted each investor a right of participation in the Company's financings for a period of 24 months.

Between April 13, 2015, and April 14, 2015, certain holders of warrants issued in the April 2015 Private Placement to purchase an aggregate of 250,000 shares of common stock exercised such warrants on a cashless basis for an aggregate issuance of 164,835 shares of common stock. As of December 31, 2016, there were 805,361 warrants outstanding from the April 2015 Private Placement to purchase common stock at $11.10 per share.

October 2015 Public Offering

On October 5, 2015, the Company closed a public offering of 337,838 shares of common stock and warrants to purchase 168,919 shares of common stock, at an offering price of $8.14 per share. For every two shares of common stock sold, the Company issued one warrant to purchase one share of common stock. The Company received $2,750,000 in gross proceeds, before underwriting discounts and commissions and offering expenses totaling approximately $586,608, and without giving effect to any exercise of the underwriters' over-allotment option. The Company used the net proceeds from this offering to fund the HuMab-5B1 human antibody program preclinical development and for working capital and general corporate purposes.

The shares and warrants were separately issued and sold in equal proportions. The warrants are immediately exercisable, expire September 30, 2018, and have an exercise price of $9.77 per share. The warrants are not listed on any securities exchange or other trading market. As of December 31, 2016, there were warrants to purchase 168,919 shares of common stock outstanding. The Company granted the underwriters a 30-day option to purchase up to an additional 50,676 shares of common stock and up to an additional 25,338 warrants at the same price to cover over-allotments, if any.

Under the terms of the underwriting agreement entered into between the Company and the underwriter in the public offering, the Company, without the prior written consent of the underwriter, was prohibited, for a period of 90 days after execution of the underwriting agreement, from issuing any equity securities, subject to certain exceptions.

August 2016 Public Offering

On August 22, 2016, we closed a public offering of 1,297,038 shares of common stock and 665,281 shares of Series F Preferred Stock convertible into 665,281 shares of common stock, and warrants to purchase 1,962,319 shares of common stock at $5.55 per share and warrants to purchase 1,962,319 shares of common stock at $6.29 per share, at an offering price of $4.81 per share. For every one share of common stock or Series F Preferred Stock sold, we issued one warrant to purchase one share of common stock at $5.55 per share and one warrant to purchase one share of common stock at $6.29 per share. We received $9,438,753 in gross proceeds, before underwriting discounts and commissions and offering expenses totaling $871,305. The gross proceeds include the underwriter's over-allotment option, which they exercised on the closing date.

Issuance of Common Stock under a 2014 Common Stock Purchase Agreement

In connection with a financing by the Company in July 2014 (the "July 2014 Financing Transaction"), the Company assumed certain obligations as per the original agreement to issue additional shares to investors in the July 2014 Financing Transaction if a subsequent financing or issuance of shares was at a price per share lower than the price per share in the July 2014 Financing Transaction. The Company issued on March 31, 2015, an aggregate of 11,904 shares of common stock that were required to be issued in connection with the July 2014 Financing Transaction as a result of the issuance of shares at a lower share price than in the July 2014 Financing Transaction.

Grant of Restricted Shares

Rubin Grant

On April 3, 2015, the Company entered into a consulting agreement with Steve Rubin pursuant to which he agreed to provide advisory services in connection with corporate strategy, licensing and business development estimated to be for a period of 12 months. In exchange for his services, the Company provided him with a one-time grant of 27,027 shares of the Company's restricted common stock, valued at $17.02 per share. As the shares granted were fully vested upon grant and the Company has no legal recourse to recover the shares in the event of nonperformance, the Company recognized the grant date fair value of the shares as consulting expense upon grant during the second quarter of 2015.

Ravetch Grant

On April 4, 2015, the Board of Directors approved the issuance of an additional restricted stock award of 17,770 shares to Jeffrey Ravetch, M.D., Ph. D, who is one of the Company's board members. This award is for future services covering at least a one-year period. The award was granted in addition to the prior award to Dr. Ravetch on April 2, 2015 of (i) 4,628 restricted shares and (ii) options to purchase 4,628 shares of common stock with an exercise price of $17.02 per share, for a total grant of 27,028 restricted shares and options. As the 17,770 shares granted were fully vested upon grant and the Company has no legal recourse to recover the shares in the event of nonperformance, the Company recognized the grant date fair value of the shares as consulting expense upon grant during the second quarter of 2015.

Livingston Grant

On April 4, 2015, the Board of Directors approved the issuance of a restricted stock award by the Company of 135,135 shares of common stock, valued at $17.02 per share, to Philip Livingston, Ph.D. for his continuing service to the Company. On May 13, 2015, the Compensation Committee of the Board of Directors clarified that the award was being granted in consideration for at least one year of Dr. Livingston's services. The committee further clarified that the vesting of the common stock shall be on the one-year anniversary of the Board of Directors' approval of the award, or April 4, 2016. The Company expensed the grant date fair value of the award over the vesting period of one year.

Consultant Grants

On April 5, 2015, the Company entered into consulting agreements with two investor relations consultants to provide relations services to the Company in consideration for an immediate grant of 40,541 shares of the Company's restricted common stock and a monthly cash retainer of $12,000 a month for ongoing services for a period of one year. The consultants also received an additional 27,027 shares of the Company's restricted common stock upon the Company's achieving a milestone based on its fully-diluted market capitalization. As the shares granted were fully vested upon grant and the Company has no legal recourse to recover the shares in the event of nonperformance, the Company recognized the grant date fair value of the 40,541 shares or $690,000, as investor relations expense upon grant during the second quarter of 2015. The performance condition for the 27,027 shares became probable and the market capitalization metric was met during the second quarter; therefore, the Company recognized an additional $460,000 of expense during the second quarter of 2015.

Also during 2015, the Board of Directors approved the issuance of restricted stock awards to two other consultants totaling 16,217 shares with vesting terms ranging from one to three years, valued from $13.10 to $15.76 per share. The Company is expensing each of the grant date fair value of the awards over the performance period for the award, which will be re-measured at the end of each quarter until the performance is complete. As of December 31, 2016, the Company expensed $32,569 related to these grants. As of December 31, 2016, the expected future compensation expense related to these grants is $24,571 based upon the Company's stock price on December 31, 2016.

On January 13, 2016, the Board of Directors approved the issuance of 13,514 shares of restricted stock valued at $64,000 to a consultant for advisory services to the Company that was fully recognized upon issuance.

On September 1, 2016, the Board of Directors approved the issuance of 22,130 shares of common stock with a date of issuance fair value of $100,000 to an investor relations consulting firm. In exchange for the shares granted and a monthly retainer, the consulting firm will perform investor relations services on behalf of the Company. As the shares granted were fully vested upon grant and the Company has no legal recourse to recover the shares in the event of nonperformance, the Company recognized the grant date fair value of the 22,130 shares of $100,000 as investor relations expense upon grant during the third quarter of 2016.

8. Related Party Transactions

On November 3, 2016, the Company granted 17,500 stock options to Jeffrey Ravetch, M.D., Ph.D., a Board member, for his ongoing consulting services to the Company. The option award vests over a three-year period.

On April 1, 2016, the Company entered into a two-year consulting agreement with Jeffrey Ravetch, M.D., Ph.D., a Board member, for work beginning January 1, 2016 through December 31, 2017, at a rate of $100,000 a year, in support of scientific and technical advice on the discovery and development of technology and products for the Company primarily related to monoclonal antibodies, corporate development, and corporate partnering efforts. In April 2016, the Company paid Dr. Ravetch $100,000 for services to be performed in 2016, and will pay quarterly thereafter beginning January 1, 2017.

In April 2015, the Company granted a restricted stock award of 135,135 shares to Phil Livingston, Ph.D., an employee and Board member, for his continuing services to the Company. In addition, in April 2015, the Company has granted a restricted stock award of 17,770 shares for Jeffrey Ravetch, M.D., Ph.D., a Board member, for consulting services.

9. Stock-based Compensation

Stock Incentive Plan

In September 2008, the Company's stockholders approved the 2008 Stock Incentive Plan (the "2008 Plan") which became effective in September 2008 and under which 8,853 shares of the Company's common stock were initially reserved for issuance to employees, non-employee directors and consultants of the Company. In November 2012, the Company increased the authorized shares under the plan to 21,067. On February 14, 2013, the 2008 Plan terminated and no further grants of equity may be made thereunder.

In June 2014, MabVax Therapeutics Inc.'s stockholders approved the amended 2014 Stock Incentive Plan (the "2014 Plan") which became effective and was adopted by the Company in the Merger in July 2014. The 2014 Plan authorized the issuance of up to 47,493 shares, 20,543 of which are contingent upon the forfeiture, expiration or cancellation of the 2008 Reserved Shares.

The 2014 Plan provided for the grant of incentive stock options, non-incentive stock options, stock appreciation rights, restricted stock awards, and restricted stock unit awards to eligible recipients. The maximum term of options granted under the Stock Plan is ten years.

Employee option grants generally vest 25% on the first anniversary of the original vesting date, and the balance vests monthly over the following three years. The vesting schedules for grants to non-employee directors and consultants is determined by the Company's Compensation Committee. Stock options are generally not exercisable prior to the applicable vesting date, unless otherwise accelerated under the terms of the applicable stock plan agreement.

Amendment of Equity Incentive Plan

On March 31, 2015, the Company approved a Second Amended and Restated 2014 Employee, Director and Consultant Equity Incentive Plan (the "Plan"), effective as of and contingent upon the consummation of the initial closing of the April Private Placement, to increase the number of shares reserved for issuance under the Plan from 21,361 to 1,129,837 shares of common stock. Additional changes to the Plan include:

- An "evergreen" provision to reserve additional shares for issuance under the Plan on an annual basis commencing on the first day of fiscal 2016 and ending on the second day of fiscal 2024, such that the number of shares that may be issued under the Plan shall be increased by an amount equal to the lesser of: (i) 1,081,082 or the equivalent of such number of shares after the administrator, in its sole discretion, has interpreted the effect of any stock split, stock dividend, combination, recapitalization or similar transaction in accordance with the Plan; (ii) the number of shares necessary such that the total shares reserved under the Plan equals (x) 15% of the number of outstanding shares of common stock on such date (assuming the conversion of all outstanding shares of Preferred Stock (as defined in the Plan) and other outstanding convertible securities and exercise of all outstanding warrants to purchase common stock) plus (y) 30,946; and (iii) an amount determined by the Board.

- Provision that no more than 405,406 shares may be granted to any participant in any fiscal year.

- Provisions to allow for performance based equity awards to be issued by the Company in accordance with Section 162(m) of the Internal Revenue Code.

- On September 22, 2016, the Board of Directors ratified an automatic increase in the number of shares reserved for issuance under the Plan, increasing the total shares reserved from 1,129,837 to 1,208,307 shares of common stock, under the annual evergreen provision for the Plan.

Stock-based Compensation

Total estimated stock-based compensation expense, related to all of the Company's stock-based payment awards recognized under ASC 718, "Compensation—Stock Compensation" and ASC 505, "Equity" was comprised of the following:

	Years Ended December 31,	
	2016	2015
Research and development	$ 1,192,126	$ 929,633
General and administrative	3,211,152	3,534,062
Total stock-based compensation expense	$ 4,403,278	$ 4,463,695

Stock-based Award Activity

The following table summarizes the Company's stock option activity for the years ended December 31, 2016 and 2015:

	Options Outstanding	Weighted Average Exercise Price
Outstanding at December 31, 2014	32,823	$ 29.00
Granted	407,547	16.50
Exercised	(376)	2.15
Forfeited/cancelled/expired	(1,746)	54.91
Outstanding and expected to vest at December 31, 2015	438,248	$ 17.46
Granted	449,542	5.13
Exercised	—	—
Forfeited/cancelled/expired	(36,415)	15.28
Outstanding and expected to vest at December 31, 2016	851,375	$ 10.94
Vested and exercisable at December 31, 2016	167,291	$ 17.29

The total unrecognized compensation cost related to unvested stock option grants as of December 31, 2016 was $3,007,785 and the weighted average period over which these grants are expected to vest is 1.96 years. Due to limited activity in 2016, the Company has assumed a forfeiture rate of zero. The weighted average remaining contractual life of stock options outstanding at December 31, 2016 and 2015 is 8.82 years and 9.13 years, respectively.

Stock options granted to employees generally vest over a three-year period with one third of the grants vesting at each one-year anniversary of the grant date.

During 2016, the Company granted 449,542 options to its directors, officers, employees with a weighted average exercise price of $5.13 and vesting over a three-year period with vesting starting at the one-year anniversary of the grant date. During 2015, there were 407,547 options and 310,926 shares of restricted stock granted to directors, officers, employees and consultants from the 2014 Plan. During the year ended December 31, 2016, 105,448 shares of restricted stock units have vested and the balance will vest in two equal installments on the anniversary of the grant date over the next two years. During the year ended December 31, 2016, the Company has recognized $1,628,405 in stock based compensation expense related to restricted stock units. In addition, the Company granted 250,203 shares of restricted stock outside of the plan for consulting and investor relation services during the second quarter of 2015.

A summary of activity related to restricted stock grants under the Plan for the years December 31, 2016 and 2015 is presented below:

	Shares	Weighted Average Grant-Date Fair Value
Non-vested at December 31, 2014	—	$ —
Granted	310,926	16.84
Vested	—	—
Forfeited	—	—
Non-vested at December 31, 2015	310,926	16.84
Granted	—	—
Vested	(105,448)	$ 16.84
Forfeited	—	—
Non-vested at December 31, 2016	205,478	

On April 2 and April 3, 2016, 98,237 shares of restricted stock units vested upon the one-year anniversary of restricted stock units granted. Accordingly, 64,392 shares were issued to the Company's directors and officers, and the Company withheld 33,848 shares for the employee portion of taxes and remitted $177,823 to the tax authorities in order to satisfy tax liabilities related to this issuance on behalf of the officers. In addition, in July and August of 2016, 7,208 shares were issued to outside consultants upon vesting of previously issued restricted stock units. As of December 31, 2016, there were 205,478 nonvested restricted stock units remaining outstanding.

As of December 31, 2016 and 2015, unamortized compensation expense related to restricted stock grants amounted to $2,214,859 and $3,843,264, which is expected to be recognized over a weighted average period of 1.27 and 2.27 years, respectively.

Valuation Assumptions

The Company used the Black-Scholes-Merton option valuation model, or the Black-Scholes model, to determine the stock-based compensation expense for stock options recognized under ASC 718 and ASC 505. The Company's expected stock-price volatility assumption was based solely on the weighted average of the historical and implied volatility of comparable companies whose share prices are publicly available. The expected term of stock options granted was based on the simplified method in accordance with Staff Accounting Bulletin No. 110, or SAB 110, as the Company's historical share option exercise experience did not provide a reasonable basis for estimation. The risk-free interest rate was based on the U.S. Treasury yield for a period consistent with the expected term of the stock award in effect at the time of the grant.

	Years Ended December 31,	
	2016	2015
Risk-free interest rate	0.9 to 1.4 %	0.9 to 1.8 %
Dividend yield	0%	0%
Expected volatility	71 to 86%	81 to 87%
Expected life of options, in years	1.61 to 6.0	5.5 and 6.0
Weighted average grant date fair value	$ 3.16	$ 1.56

Because the Company had a net operating loss carryforward as of December 31, 2015 and 2016, no tax benefits for the tax deductions related to stock-based compensation expense were recognized in the Company's consolidated statements of operations. Additionally, there were 376 stock options exercised during the year ended December 31, 2015, and there were no stock option exercises in the corresponding period of 2016.

Management Bonus Plan

On April 2, 2015, the Compensation Committee of the Board of Directors approved the 2015 Management Bonus Plan (the "Management Plan") outlining maximum target bonuses of the base salaries of certain of the Company's executive officers. Under the terms of the Management Plan, the Company's Chief Executive Officer shall receive a maximum target bonus of up to 50% of his annual base salary, the Chief Financial Officer shall receive a maximum target bonus of up to 35% of his annual base salary and the Company's Vice President shall receive a maximum target bonus of up to 25% of his annual base salary. During the year ended December 31, 2016 and 2015, the Company accrued and expensed $458,586 and $323,363, respectively related to the Management Plan.

On April 4, 2015, the Board approved the following Non-Employee Director Policy (the "Incumbent Director Policy") with respect to incumbent non-employee members of the Board in the event that they are replaced before their term expires:

- A one-time issuance of 2,703 restricted shares of common stock;
- The vesting of all options and restricted stock grants held on such date; and
- The payment of all earned but unpaid cash compensation for their services on the Board and its committees, as of such date.

On April 4, 2015, in connection with his resignation from the Board, Michael Wick received a one-time restricted stock grant of 2,703 shares under the Incumbent Director Policy.

On February 16, 2016, our Compensation Committee approved a 2016 Management Bonus Plan (the "2016 Management Plan") outlining maximum target bonuses of the base salaries of certain of our executive officers. Under the terms of the 2016 Management Plan, the Company's Chief Executive Officer shall receive a maximum target bonus of up to 50% of his annual base salary, and the Chief Financial Officer and each of the Company's Vice Presidents shall receive a maximum target bonus of up to 30% of their annual base salary.

On February 16, 2016, the Compensation Committee of the Board of Directors of the Company approved the following amendments to Company's policy for compensating non-employee members of the Board:

- The initial equity grant upon first appointment (or election) of future non-employee directors to the Board shall be a 10-year option to purchase 6,757 shares of the Company's common stock, under the Company's Second Amended and Restated 2014 Equity Incentive Plan with 3-year annual vesting and a strike price equal the closing price of the Company's common stock on the effective date of the appointment (or election);
- The annual cash retainer for each non-employee director, paid quarterly, is increased by $1,000 per calendar quarter to a total of $7,000 per quarter, effective April 1, 2016; and
- The additional annual cash retainer for the chairperson of each of the Audit, Compensation, and Nominating and Governance Committees, paid quarterly, is increased by $1,000 per calendar year, such that each chairperson retainer shall be as follows, effective April 1, 2016: Audit Committee: $13,000; Compensation Committee: $9,000; Nominating and Governance Committee: $6,000.

On August 25, 2016, the Compensation Committee of the Board of Directors of the Company approved the following amendments to Company's policy for compensating non-employee members of the Board:

- The initial equity grant upon first appointment (or election) of future non-employee directors to the Board shall be a 10-year option to purchase 25,000 shares of the Company's common stock, under the Company's Second Amended and Restated 2014 Equity Incentive Plan with 3-year annual vesting and a strike price equal to the closing price of the Company's common stock on the effective date of the appointment (or election); and
- The additional automatic annual option grant to each non-employee director on the date of the Company's annual meeting shall be a 10-year option to purchase 17,500 shares of the Company's common stock, under the Company's Second Amended and Restated 2014 Equity Incentive Plan with 1-year vesting and a strike price equal to the closing price of the Company's common stock on the date of the annual meeting.

Common Stock Reserved for Future Issuance

Common stock reserved for future issuance consists of the following at December 31, 2016:

Common stock reserved for conversion of preferred stock and warrants	8,099,568
Common stock options outstanding	851,375
Authorized for future grant or issuance under the Stock Plan	66,693
Unvested restricted stock	205,478
Total	9,223,114

10. Net Loss per Share

The Company calculates basic and diluted net loss per share using the weighted average number of shares of common stock outstanding during the period.

When the Company is in a net loss position, it excludes from the calculation of diluted net loss per share all potentially dilutive stock options, preferred stock and warrants, and the diluted net loss per share is the same as the basic net loss per share for such periods. If the Company was to be in a net income position, the weighted average number of shares used to calculate the diluted net income per share would include the potential dilutive effect of in-the-money securities, as determined using the treasury stock method.

The table below presents the potentially dilutive securities that would have been included in the calculation of diluted net loss per share if they were not antidilutive for the periods presented.

	Years Ended December 31,	
	2016	2015
Stock options	851,375	438,248
Preferred stock	2,975,424	3,038,163
Unvested restricted stock	205,478	310,926
Warrants to purchase common stock	5,124,144	974,280
Total	9,156,421	4,761,617

11. Contracts and Agreements

Memorial Sloan Kettering Cancer Center, or MSK

Since 2008 the Company has engaged in various research agreements and collaborations with MSK including licensed rights to cancer vaccines and the blood samples from patients who have been vaccinated with MSK's cancer vaccines. Total sponsored research contracts outstanding in 2016 amounting to approximately $800,000 in 2016 were approximately 100% complete as of the year ended December 31, 2016. Such sponsored research agreements provide support for preclinical work on the Company's product development programs. The work includes preparing radioimmunoconjugates of the Company's antibodies and performing *in vitro* and *in vivo* pharmacology studies for our therapeutic antibody product, imaging agent product and radioimmunotherapy product programs.

Life Technologies Licensing Agreement

On September 24, 2015, the Company entered into a licensing agreement with Life Technologies Corporation ("Life Technologies"), a subsidiary of ThermoFisher Scientific. Under the agreement, MabVax agreed to license certain cell lines from Life Technologies to be used in the production of recombinant proteins for the Company's clinical trials. The amount of the contract is for $450,000 and was fully expensed during the year ended December 31, 2015. In each of the years ended December 31, 2015 and 2016, the Company paid $225,000 and $225,000, respectively, related to this contract.

Rockefeller University Collaboration

In July 2015, the Company entered into a research collaboration agreement with Rockefeller University's Laboratory of Molecular Genetics and Immunology. The Company provided antibody material to Rockefeller University, which is exploring the mechanism of action of constant region (Fc) variants of the HuMab-5B1 in the role of tumor clearance. The Company will supply additional research materials as requested by the university, which is evaluating ways to optimize the function.

Patheon Biologics LLC Agreement

On April 14, 2014, the Company entered into a development and manufacturing services agreement (the "Services Agreement") with Patheon (f.k.a. Gallus Biopharmaceuticals) to provide a full range of manufacturing and bioprocessing services, including cell line development, process development, protein production, cell culture, protein purification, bio-analytical chemistry and quality control, or QC, testing. Total amount of the contract is estimated at approximately $3.0 million. For the years ended December 31, 2016 and 2015, the Company recorded $0 and $2,556,278 of expense, respectively, associated with the Services Agreement. During the third quarter of 2016, the Company negotiated a reduction in the amount previously recorded and owed to Patheon related to manufacturing batches that have failed, resulting in the reduction in R&D expenses of approximately $363,000 during the quarter.

NCI PET Imaging Agent Grant

In September 2013, the NCI awarded the Company a SBIR Program Contract to support the Company's program to develop a PET imaging agent for pancreatic cancer using a fragment of the Company's HuMab-5B1 antibody (the "NCI PET Imaging Agent Grant"). The project period for Phase I of the grant award of approximately $250,000 covered a nine-month period which commenced in September 2013 and ended in June 2014.

On August 25, 2014, the Company was awarded a $1.5 million contract for the Phase II portion of the NCI PET Imaging Agent Grant. The contract is intended to support a major portion of the preclinical work being conducted by the Company, together with its collaboration partner, MSK, to develop a novel Positron Emission Tomography ("PET") imaging agent for detection and assessment of pancreatic cancer. The total contract amount for Phase I and Phase II was approximately $1,749,000. The Company recorded revenue associated with the NCI PET Imaging Agent Grant as the related costs and expenses were incurred. For the years ended December 31, 2016 and 2015, the Company recorded $148,054 and $1,141,451 of revenue associated with the NCI PET Imaging Agent Grant, respectively. No additional activities are required or planned under the contract and all monies available under the contract have been requested and received.

Juno Therapeutics Option Agreement

On August 29, 2014, the Company entered into an option agreement (the "Option Agreement") with Juno Therapeutics, Inc. ("Juno") in exchange for a one-time up-front option fee in the low five figures. Pursuant to the Option Agreement, the Company granted Juno the option to obtain an exclusive, world-wide, royalty-bearing license authorizing Juno to develop, make, have made, use, import, have imported, sell, have sold, offer for sale and otherwise exploit certain patents the Company developed with respect to fully human antibodies with binding specificity against human GD2 or sialyl-Lewis A antigens and certain Company controlled biologic materials. As of June 30, 2016, the Option Agreement expired and Juno no longer has a contractual right for use of Company binding domains for use in the construction of CAR T-cells.

During the years ended December 31, 2016 and 2015, no revenues had been earned under the Option Agreement.

12. Commitments and contingencies

Litigation

On September 18, 2015, an Order and Final Judgment was entered by the Superior Court of the State of California, approving a settlement of a class action lawsuit commenced on May 30, 2014, in Santa Clara County Superior Court, State of California, on behalf of Cadillac Partners and others similarly situated, naming as defendants, MabVax Therapeutics, the Company and the Company's directors, Hudson Bay Capital Management LP, Bio IP Ventures LLC, Hudson Bay Master Fund Ltd., and Hudson Bay IP Opportunities Master Fund LP, together the "Parties," alleging the defendants breached certain fiduciary duties, or aided and abetted a breach of fiduciary duties, in connection with the Company's Merger with MabVax Therapeutics. The plaintiff sought to enjoin the Merger and obtain damages as well as attorneys' and expert fees and costs. We expect to incur no expenses in 2016 or thereafter in connection with this lawsuit or settlement.

Capital Leases

On March 21, 2016, the Company entered into a lease agreement with ThermoFisher Scientific ("Lessor"). Under the terms of the agreement, the Company agreed to lease two pieces of equipment from the Lessor, a liquid chromatography system and an incubator, totaling in cost $95,656. The term of the lease is five years (60 months), and the monthly lease payment is $1,942. In addition, there is a $1.00 buyout option at the end of the lease term.

Minimum future annual capital lease obligations are as follows as of December 31, 2016:

2017	$ 23,306
2018	23,306
2019	23,306
2020	23,306
2021	7,769
Less interest	(15,876)
Principal	85,117
Less current portion	(17,004)
Noncurrent portion	$ 68,113

Operating Leases

In connection with the Merger, the Company recorded a $590,504 contingent lease termination fee, related to the termination of the master lease and sublease of the Porter Drive Facility by MabVax Therapeutics Holdings (f.k.a. Telik, Inc.), which is payable to ARE-San Francisco No. 24 ("ARE") if the Company receives $15 million or more in additional financing in the aggregate. The additional financing was achieved in 2015 and the termination fee is reflected on the balance sheet as an accrued lease contingency fee.

On September 2, 2015, the Company entered into a lease (the "Lease") with AGP Sorrento Business Complex, L.P., for certain premises of office and laboratory space in buildings located at 11535 Sorrento Valley Rd., San Diego, California, to serve as the Company's corporate offices and laboratories (the "New Premises"). Due to the fact that certain tenant improvements needed to be made to the New Premises before the Company could take occupancy, the term of the Lease did not commence until the New Premises were ready for occupancy, on February 4, 2016. The Lease terminates six years after such term commencement date, unless earlier terminated in accordance with the Lease. Pursuant to the terms of the Lease, the monthly base rent will be $35,631, subject to annual increases as set forth in the Lease.

The Company has an option to extend the Lease term for a single, five-year period. If the Lease term is extended for the optional five-year period, the monthly base rent will be adjusted based on fair market rental value. In addition to rent, the Company agreed to pay a portion of the taxes and utility, maintenance and other operating costs paid or accrued in connection with the ownership and operation of the property.

The Company previously leased its corporate office and laboratory space under an operating lease that, as amended on August 1, 2010, expired on July 31, 2015.

We recognize rent expense on a straight-line basis over the term the lease. Rent expense of $433,397 and $122,236 was recognized in the years ended December 31, 2016 and 2015, respectively.

Minimum future annual operating lease obligations are as follows as of December 31, 2016:

2017	$ 439,330
2018	452,510
2019	466,085
2020	480,068
2021	494,469
Thereafter	41,306
Total	$ 2,373,768

13. Income Taxes

During the years ended December 31, 2016 and 2015, the Company did not record a provision or benefit for current or deferred income taxes in the consolidated statement of operations due to its cumulative net losses.

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of the Company's net deferred tax assets are as follows as of December 31, 2016 and 2015:

	2016	2015
Deferred tax assets:		
Net operating loss carryforwards	$ 20,169,000	$ 14,502,000
Tax credits	5,065,000	4,803,000
Accrued expenses and other	2,667,900	1,861,300
Total deferred tax assets	27,901,900	21,166,300
Less valuation allowance	(27,901,900)	(21,166,300)
Net deferred tax assets	$ —	$ —

The Company has evaluated the available evidence supporting the realization of its gross deferred tax assets, including the amount and timing of future taxable income, and has determined that it is more likely than not that the deferred tax assets will not be realized. Due to such uncertainties surrounding the realization of the Company's deferred tax assets, the Company maintains a valuation allowance of $27,901,900 against its deferred tax assets as of December 31, 2016. Realization of the deferred tax assets will be primarily dependent upon the Company's ability to generate sufficient taxable income prior to the expiration of its net operating losses.

During the year ended December 31, 2014, MabVax Therapeutics, Inc. merged with Telik, Inc. in a tax-free reorganization. As a result of the merger, all components of Telik's deferred tax assets are now included as deferred tax assets of MabVax Therapeutics, Inc. These pre-merger deferred tax assets are net operating loss carryforwards of $1,588,000, research and development credit carryforwards of $4,457,000, in total equaling $6,045,000. The current year change in these assets has been reflected in the provision for income taxes.

As of December 31, 2016, the Company had net operating loss carryforwards of approximately $50,576,000 and $50,994,000 for federal and state income tax purposes, respectively. These may be used to offset future taxable income and will begin to expire in varying amounts in 2028 to 2035. The Company also has research and development credits of approximately $525,500 and $6,878,000 for federal and state income tax purposes, respectively. The federal credits may be used to offset future taxable income and will begin to expire at various dates beginning in 2030 through 2035. The state credits may be used to offset future taxable income, and such credits carry forward indefinitely.

The Company is subject to taxation in the U.S. and California jurisdictions. Currently, no historical years are under examination. The Company's tax years ending December 31, 2016 and 2015 are subject to examination by the U.S. and state taxing authorities due to the carryforward of unutilized net operating losses and research and development credits.

Utilization of the Company's net operating loss carryforwards and research and development credit carryforwards may be subject to a substantial annual limitation due to an "ownership change" that may have occurred, or that could occur in the future, as defined and required by Section 382 of the Internal Revenue Code of 1986, as amended, as well as similar state provisions. These ownership changes may limit the amount of net operating loss carryforwards and research and development credit carryforwards, and other tax attributes that can be utilized annually to offset future taxable income and tax, respectively. Any limitation may result in the expiration of a portion of the net operating loss carryforwards or research and development credit carryforwards before utilization. The net operating loss carryforwards and research and development credit carryforwards inherited as a result of the merger with Telik, Inc. have been severely limited under these rules and will likely not be realized.

In general, an "ownership change" results from a transaction or series of transactions over a three-year period resulting in an ownership change of more than 50% of the outstanding stock of a company by certain stockholders or public groups. The Company intends to complete a study in the future to assess whether an ownership change has occurred or whether there have been multiple ownership changes since the Company's formation, and will complete such study before the use of any of the aforementioned attributes.

The provision for income taxes differs from the amount computed by applying the U.S. federal statutory tax rate (34% in 2016 and 2015) to income taxes as follows:

	2016	2015
Tax benefit computed at 34%	$ (6,004,000)	$ (6,155,300)
State tax provision, net of federal tax benefit	(989,344)	(1,551,444)
Change in valuation allowance	6,735,600	7,335,300
Other	257,744	371,444
Tax provision (benefit)	$ —	$ —

The Company has adopted ASC 740-10-25. This interpretation clarifies the criteria for recognizing income tax benefits under ASC 740, *"Accounting for Income Taxes,"* and requires additional disclosures about uncertain tax positions. Under ASC 740-10-25 the financial statement recognition of the benefit for a tax position is dependent upon the benefit being more likely than not to be sustainable upon audit by the applicable taxing authority. If this threshold is met, the tax benefit is then measured and recognized at the largest amount that is greater than 50 percent likely of being realized upon ultimate settlement.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the registration statements on Form S-8 (No. 333-203200) of MabVax Therapeutics Holdings, Inc., of our report dated March 1, 2017, related to our audit of the consolidated financial statements of MabVax Therapeutics Holdings, Inc., as of December 31, 2016 and 2015 and for the years then ended, which report included an explanatory paragraph relating to MabVax Therapeutics, Inc.'s ability to continue as a going concern, included in this 2016 Annual Report on Form 10-K.

/s/ CohnReznick LLP

San Diego, California
March 1, 2017

Exhibit 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER

PURSUANT TO SECTION 302 OF

THE SARBANES-OXLEY ACT OF 2002

I, J. David Hansen, certify that:

1) I have reviewed this Annual Report on Form 10-K of MabVax Therapeutics Holdings, Inc.;

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

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

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

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

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

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

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

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

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

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

March 1, 2017

/s/ J. David Hansen
J. David Hansen
President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER

PURSUANT TO SECTION 302 OF

THE SARBANES-OXLEY ACT OF 2002

I, Gregory P. Hanson, certify that:

1) I have reviewed this Annual Report on Form 10-K of MabVax Therapeutics Holdings, Inc.;

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

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

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

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

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

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

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

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

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

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

March 1, 2017

/s/ Gregory P. Hanson
Gregory P. Hanson
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER

PURSUANT TO 18 U.S.C. Sec.1350,

AS ADOPTED PURSUANT TO

SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of MabVax Therapeutics Holdings, Inc. (the Company) on Form 10-K for the year ended December 31, 2016 as filed with the Securities and Exchange Commission on the date hereof (the Report), I, J. David Hansen, President and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

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

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

March 1, 2017

/s/ J. David Hansen
J. David Hansen
President and Chief Executive Officer
(Principal Executive Officer)

A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 has been provided to MabVax Therapeutics Holdings, Inc. and will be furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 32.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER

PURSUANT TO 18 U.S.C. Sec.1350,

AS ADOPTED PURSUANT TO

SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of MabVax Therapeutics Holdings, Inc. (the Company) on Form 10-K for the year ended December 31, 2016 as filed with the Securities and Exchange Commission on the date hereof (the Report), I, Gregory P. Hanson, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

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

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

March 1, 2017

/s/ Gregory P. Hanson
Gregory P. Hanson
Chief Financial Officer
(Principal Financial Officer)

A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 has been provided to MabVax Therapeutics Holdings, Inc. and will be furnished to the Securities and Exchange Commission or its staff upon request.