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

FORM 10-K

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

For the fiscal year ended December 31, 2017

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

For the transition period from _____to _____

Commission File Number: 001-35737

NORTHWEST BIOTHERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**94-3306718**
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification No.)

4800 Montgomery Lane, Suite 800, Bethesda, MD 20814
(Address of principal executive offices) (Zip Code)

(240) 497-9024
(Registrant's telephone number)

N/A
(Former Name, Former Address and Former Fiscal Year, if changed since last report)

Securities registered pursuant to Section 12(b) of the Act: common stock, par value $0.001 per share

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

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

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 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 (the "Exchange Act") 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 during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

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

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

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☐ (Do not check if a smaller reporting company)	Smaller reporting company	☒
Emerging growth company	☐		

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

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant was $34,775,232 on June 30, 2017. As of April 16, 2018 the registrant had 414,665,188 shares of common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE
None.

NORTHWEST BIOTHERAPEUTICS, INC.

FORM 10-K

TABLE OF CONTENTS

PART I

This Report on Form 10-K for Northwest Biotherapeutics, Inc. may contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Such forward-looking statements are characterized by future or conditional verbs such as "may," "will," "expect," "intend," "anticipate," believe," "estimate" and "continue" or similar words. You should read statements that contain these words carefully because they discuss future expectations and plans, which contain projections of future results of operations or financial condition or state other forward-looking information. Such statements are only predictions and our actual results may differ materially from those anticipated in these forward-looking statements. We believe that it is important to communicate future expectations to investors. However, there may be events in the future that we are not able to accurately predict or control. Factors that may cause such differences include, but are not limited to, those discussed under Item 1A of this Report, including the uncertainties associated with product development, the risk that products that appeared promising in early clinical trials do not demonstrate safety and efficacy in larger-scale clinical trials, the risk that we will not obtain approval to market our products, the risks associated with dependence upon key personnel and the need for additional financing. We do not assume any obligation to update forward-looking statements as circumstances change.

Unless the context otherwise requires, “Northwest Biotherapeutics,” the “Company,” “we,” “us,” “our” and similar names refer to Northwest Biotherapeutics, Inc. DCVax® is a registered trademark of the Company.

ITEM 1. BUSINESS.

Overview

We are a biotechnology company focused on developing personalized immune therapies for cancer. We have developed a platform technology, DCVax, which uses activated dendritic cells to mobilize a patient's own immune system to attack their cancer.

Our lead product, DCVax®-L, is designed to treat solid tumor cancers in which the tumor can be surgically removed. This product in an ongoing Phase III trial for newly diagnosed Glioblastome multiforme (GBM). 331 patients have been enrolled in the trial, and enrollment is closed. The Company is also working on preparations for Phase II trials of DCVax-L for other indications.

Our second product, DCVax®-Direct, is designed to treat inoperable solid tumors. A 40-patient Phase I trial has been completed, and included treatment of a diverse range of cancers. The Company is working on preparations for Phase II trials of DCVax-Direct.

The DCVax Technology

Our platform technology, DCVax, is a personalized immune therapy which consists of a therapeutic vaccine that uses a patient's own dendritic cells, or DCs, the master cells of the immune system, as the therapeutic agent. The patient’s DCs are obtained through a blood draw, or leukapheresis. The DCs are then activated and loaded with biomarkers (“antigens”) from the patient’s own tumor. For DCVax-L, the antigen loading process takes place during the manufacturing of the product. For DCVax-Direct, the antigen loading process takes place *in situ* after the product is directly injected into the patient’s inoperable tumors. The loading of antigens into the DCs “educates” the DCs about what the immune system needs to target.

Clinical Trials and Early Access Programs

DCVax-L for Operable Solid Tumors: GBM Brain Cancer

Our lead product candidate is DCVax-L for Glioblastoma multiforme (GBM): the most aggressive and lethal type of brain cancer. With standard of care treatment for GBM today, including surgery, radiation and chemotherapy, the median time to tumor recurrence is about 7 months, and the median survival is about 15-17 months. There is an urgent need for new and better treatments.

DCVax-L is currently in a 331-patient Phase III trial. Enrollment has closed. Patients in the trial are continuing to be treated, and “events” of tumor recurrence and patient deaths are accumulating and being tracked. The trial includes a crossover option, under which patients who were originally assigned to the placebo arm of the trial have an opportunity, when their tumor recurs, to cross over and start receiving DCVax-L. Patients who were originally assigned to the treatment arm may also continue receiving the DCVax-L treatment after their tumor recurs. The patients, the physicians and the Company remain blinded as to which arm of the trial patients were in prior to crossover.

The trial was on partial clinical hold for a period of time in regard to screening of new patients for enrollment; however, the patients already in the trial continued to be treated in accordance with the trial protocol, without interruption. In December 2016, the Company announced that to date the regulators had not agreed to remove the partial hold, and the Company had determined that it would not enroll the last 17 of the planned 348 patients. Thereafter, in February 2017, the FDA lifted its partial hold. The Company had self-imposed a hold on screening in countries outside the US, this remains in place in agreement with the regulators, and the Company will not enroll the last 17 patients as announced in December 2016.

The Company plans to conduct Phase II trials of DCVax-L in combination with other agents, such as checkpoint inhibitors, as resources permit. Such combination trials may include DCVax-L and Pembrolizumab (Keytruda) for colorectal cancer, as the Company has previously reported. Certain preparatory work will be required and regulatory approvals will have to be obtained for these trials, in addition to financing.

"Information Arm" Outside the Phase III Trial

In parallel with the Phase III trial of DCVax-L for GBM, we accepted a total of 55 patients into an "Information Arm" outside of the trial, who failed to meet the eligibility requirements for the trial. Most of these patients were actual or potential "rapid progressors" (patients in whom the brain cancer is already appearing to re-grow by the time the patient finishes the 6 weeks of daily radiotherapy and daily chemotherapy following surgical removal of the tumor). These patients were generally treated with the same DCVax-L product as in the Phase III trial, on the same treatment schedule, at the same medical centers, in the same time period, and the data were collected and maintained by the same Contract Research Organization (CRO) as is managing the trial. Among these patients, about 20 of them apparently met the "progression" (tumor re-growth) criteria at two-time points, both at the end of the 6 weeks of daily radiation and chemotherapy and 8 weeks later, and about 25 of the patients apparently met the "progression" criteria at one of the two-time points.

DCVax-L Early Access Programs

In March 2014, we received approval from the German regulatory authority of a "Hospital Exemption" for DCVax-L for glioma brain cancers under Section 4b of the German Drug Law outside of our Phase III trial. We undertook treatment of 9 patients under the Hospital Exemption. We did not undertake new Hospital Exemption patients while the Phase III trial enrollment was on partial hold. We do not plan to undertake further Hospital Exemption patients, as we are focused on completing the accumulation of data events, and analysis and reporting of the data, for the Phase III trial.

As previously reported, we have also treated a substantial number of compassionate use patients, under an Expanded Access Protocol in the US. We have also been considering other early access programs.

DCVax-Direct for <u>Inoperable</u> Solid Tumor Cancers

Our DCVax-Direct product offers a potential new treatment option for inoperable tumors. This can potentially apply to a wide range of clinical situations: for example, situations in which patients' tumors are considered inoperable because the patient has multiple tumors, or their tumor cannot be completely removed, or the surgery would cause undue damage to the patient and impair their quality of life.

A large number of patients with a variety of cancer types are faced with this situation, because their tumors are already locally advanced or have begun to metastasize by the time symptoms develop and the patients seek diagnosis and treatment. For these patients, the outlook today is bleak and survival remains quite limited.

DCVax-Direct is administered by direct injection into a patient's tumors. It can potentially be injected into any number of tumors, enabling patients with locally advanced disease or with metastases to be treated. With image guidance, DCVax-Direct can also be injected into tumors in virtually any location in the body.

We conducted a 40-patient Phase I trial of DCVax-Direct at MD Anderson Cancer Center and at Orlando Health, mainly during 2013-2015, and we are still following patients from this trial. The patients enrolled in this trial had failed other treatments, and had multiple tumors and actively progressing disease. In spite of this heavy disease burden, the treatment regimen in this first clinical trial was very conservative: only one tumor was injected in each patient, and most of the patients received only 3 treatments over the course of 2 weeks, with some receiving a 4 th treatment at week 8 and beyond.

Despite these challenging circumstances, clinical effects seen in various patients include examples of tumor necrosis (i.e., cell death) in the injected tumors, shrinkage or stabilization in some non-injected tumors, stabilization of disease and survival times beyond what was expected. We are continuing to collect follow-up data, and anticipate continuing to report on it.

This Phase I trial was designed to be very informative: we treated numerous diverse types of cancers (sarcoma, pancreatic, colorectal, lung, melanoma and others); we tested three different dose levels and various methods of image-guided administration; we collected both imaging and biopsy data, and correlated them with clinical effects in patients; we evaluated both local effects in the injected tumors and systemic effects in the non-injected tumors; we evaluated potential endpoints for future trials; and most importantly, we evaluated safety.

In the Phase I stage of the DCVax-Direct Phase I/II trial, the safety profile was excellent (as has also been the case over the years with DCVax-L). Typically, patients develop a fever after the injections, to a limited extent and for a limited duration, and they do not generally experience any significant toxicities.

Based upon the data and experience to date, we are planning to proceed with at least two Phase II trials of DCVax-Direct in different cancers, if resources permit. In the Phase II trials, we plan to inject multiple tumors, rather than just one tumor, and we plan to administer more doses than in the Phase I trial.

Target Markets for DCVax Products

Since our DCVax-L product is potentially applicable to all types of operable solid tumors, and our DCVax-Direct product is potentially applicable to all types of inoperable solid tumors, we believe that the potential markets for DCVax products are particularly large. According to the American Cancer Society, 1 in 2 men, and 1 in 3 women, in the U.S. will develop some form of cancer in their lifetime. There are nearly 1.5 million new cases of cancer per year in the U.S., and nearly 600,000 deaths from cancer. The incidence is similar in Europe, the UK and elsewhere.

Brain cancer

Brain cancers fall into two broad categories: primary (meaning the cancer first originates in the brain) and metastatic (meaning the cancer first appears elsewhere in the body, but subsequently metastasizes or spreads to the brain). In the U.S. alone, on an annual basis, there are some 40,000 new cases of primary brain cancer (including about 12,000 cases of GBM, the most severe grade of primary brain cancer), and 160,000 new cases of metastatic brain cancer. The incidence is similar in Europe, the UK and elsewhere.

In addition, brain cancer is a serious medical problem in children 18 years and under. It is the second most frequent type of childhood cancers (after leukemias) and, following progress in reducing death rates from leukemias, it is now a leading cause of childhood cancer deaths.

Very little has changed in the last 30 years in the treatment and clinical outcomes for GBM. With typical standard of care treatment today - surgery, radiation and chemotherapy - patients still generally die within a median of about 15-17 months from diagnosis. Loco-regional therapy with alternating electric fields has recently shown an increase in median Progression Free Survival (i.e., time to tumor recurrence) to 6.7 months, and median Overall Survival to 20.9 months, respectively from randomization in clinical trials. However, there has been no material advance in survival with systemic therapies since the addition of temozolomide more than 12 years ago, despite investigations with many diverse agents. There is an urgent need for new treatment options.

Manufacturing of DCVax

We use a batch manufacturing technology for our DCVax products, and we believe this manufacturing approach is a key part of the practicality of our product and its economic feasibility. Generally, we are able to produce enough doses for the patient's treatment regimen through just one manufacturing process. When a batch of DCVax product has been made, we then cryopreserve it.

Both of these technologies, the personalized batch manufacturing for each patient and the cryopreservation, are essential elements of our manufacturing model and product economics. Together, they enable us to usually incur the high costs of manufacturing just one time for each patient, and then store the multi-year or multi-dose quantity of product, frozen, in single doses. This makes DCVax effectively an "off the shelf" product for the patient after the initial manufacturing, even though it is personalized, and we anticipate that this will enable the pricing of DCVax to be in line with other new cancer drugs. We also believe that both economies of scale and automation will further enhance the product economics. The manufacturing process today is also rapid: about 8 days for DCVax-L, and 7 days for DCVax-Direct, followed by quality control and release testing.

We contract out the manufacturing of our DCVax products to Cognate BioServices for the U.S. and Canada, and to Advent BioServices (formerly Cognate U.K.) for Europe. Although there are many contract manufacturers for small molecule drugs and for biologics, there are very few companies who specialize in manufacturing living cell products. Manufacturing of cellular products is fundamentally different than production of small molecules or biologics, and the regulatory requirements are very difficult to meet. Cognate BioServices has long specialized in the production of cellular products, and has a leading track record with such products, and Advent BioServices was formerly part of Cognate.

Our DCVax programs generally require that the applicable manufacturing capacity be dedicated exclusively to our programs. Most medical products, including other types of cellular products, are made in batches on a pre-scheduled basis. In contrast, our products are fully personalized and can only be made in individual personalized batches, not large-scale batches of standardized products, and our products are made on demand, on an ongoing basis. So, the manufacturing suites generally must be dedicated entirely to NW Bio's products.

Cognate BioServices' manufacturing facility for clinical-grade cell products is located in Memphis, Tennessee. Cognate BioServices' facility is approximately 80,000 square feet and contains substantial buildout expansion space in addition to the portions currently built out and in use. The current manufacturing facilities are sufficient to produce DCVax for at least several thousand patients per year. The expansion space could allow us to procure significantly increasing capacity when needed for commercial readiness. We are also developing facilities for manufacturing in the U.K. for the European market. It is necessary for us to have manufacturing operations in Europe to meet the logistical requirements for European patients relating to the collection, delivery and processing of the patient's blood draw containing the immune cells (for which the time window is too limited to reach the US manufacturing facility).

Intellectual Property and Orphan Drug Designation

We have an integrated strategy for protection of our technology through both patents and other mechanisms, such as Orphan Drug status. As of December 31, 2017, we have over 150 issued patents and more than 60 pending patent applications worldwide, grouped into 12 patent families. Of these, 148 issued patents and 60 pending patent applications relate to our DCVax products. In the United States and Europe, some of our patents and applications relate to the composition and use of products, while other patents and applications relate to other aspects such as manufacturing and quality control. For example, in the United States, we have four issued and seven pending patent applications that relate to the composition and/or use of our DCVax products. We also have other U.S patents and applications that cover, among other things, quality control for DCVax and an automated system which we believe will help enable the scale-up of production for large numbers of patients on a cost-effective basis. Similarly, in Europe, we have five patents issued by and six pending patent applications with the European Patent Office ("EPO") that cover our DCVax products, and other patents and applications that cover aspects such as manufacturing and quality control, and the automated system. In Japan, we have seven issued patents and three pending patent applications relating to our DCVax products, as well as manufacturing related patents. Patents have been granted and are pending in other foreign jurisdictions which may be potential future markets for our DCVax products.

During 2017, six new patents were issued to us as part of our worldwide patent portfolio. The newly issued patents cover a variety of subject matter, including certain processes and methods for manufacturing and for enhancing the potency of dendritic cells related to our DCVax products, as well as encompassing certain dendritic cell compositions for direct injection into patient tumors related to DCVax-Direct.

The expiration dates of the issued U.S. patents involved in our current business range from 2022 to 2028. The expiration dates of the issued European patents involved in our current business range from 2022 to 2028. For some of the earlier dates, we plan to seek extensions of the patent life, and believe we have reasonable grounds for doing so.

In addition to our patent portfolio, we have obtained Orphan Drug designation for our lead product, DCVax-L for glioma brain cancers. Such designation brings with it a variety of benefits, including potential market exclusivity for seven years in the U.S. and ten years in Europe if our product is the first of its type to reach the market.

This market exclusivity applies regardless of patents, (i.e., even if the company that developed it has no patent coverage on the product). In addition, the time period for such market exclusivity does not begin to run until product sales begin. In contrast, the time period of a patent begins when the patent is filed and runs down during the years while the product is going through development and clinical trials.

Competition

The biotechnology and biopharmaceutical industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary products. A large and growing number of companies are actively involved in the research and development of immune therapies or cell-based therapies for cancer (including Juno, Kite, Bellicum, Argos, Agenus, Asterias, Dandrit, Immunicum, Sotio, Tocagen and many others). In addition, many big pharma companies (including BMS, Merck, Pfizer, Astra Zeneca, Roche and others) are rapidly commercializing checkpoint inhibitor drugs to “take the brakes off” patients’ immune responses to cancer. Other novel technologies for cancer are also under development or have recently been approved, such as the Optune electro-therapy device of NovoCure. Additionally, many companies are actively involved in the research and development of monoclonal antibody-based and bi-specific antibody based cancer therapies. Currently, a substantial number of antibody-based drugs are approved for commercial sale for cancer therapy, and a large number of additional ones are under development. Many other third parties compete with us in developing alternative therapies to treat cancer, including: biopharmaceutical companies; biotechnology companies; pharmaceutical companies; academic institutions; and other research organizations, as well as some medical device companies.

We face extensive competition from companies developing new treatments for brain cancer. These include a variety of immune therapies, as mentioned above, as well as a variety of small molecule drugs and biologics. There are also a number of existing drugs used for the treatment of brain cancer that may compete with our product, including, Avastin® (Roche Holding AG), Gliadel® (Eisai Co. Ltd.), and Temodar® (Merck & Co., Inc.), as well as the Optune electro-therapy device (Novocure) and oncolytic viruses. Both checkpoint inhibitor drugs and T cell based therapies are pursuing clinical trials for solid tumors, including brain cancer, as well.

Most of our competitors have significantly greater financial resources and expertise in research and development, manufacturing, pre-clinical testing, conducting clinical trials, obtaining regulatory approvals and marketing and sales than we do. Smaller or early-stage companies may also prove to be significant competitors, particularly if they enter into collaborative arrangements with large and established companies. These third parties compete with us in recruiting and retaining qualified scientific and management personnel and collaborators, as well as in acquiring technologies complementary to our programs, and in obtaining sites for our clinical trials and enrolling patients.

Corporate Information

We were formed in 1996 and incorporated in Delaware in July 1998. Our principal executive offices are located in Bethesda, Maryland, and our telephone number is (240) 497-9024. Our website address is *www.nwbio.com*. The information on our website is not part of this report. We have included our website address as a factual reference and do not intend it to be an active link to our website.

Available Information

Our website address is www.nwbio.com. We make available, free of charge through our website, our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports as soon as is reasonably practicable after such material is electronically filed with or furnished to the Securities and Exchange Commission (the "SEC"), but other information on our website is not incorporated into this report. The SEC maintains an Internet site that contains these reports at www.sec.gov. Additionally, these reports may be read and copied at the SEC's Public Reference Room at 100 F Street, NE, Washington, DC 20549, on official business days during the hours of 10 a.m. and 3 p.m. Information on the operation of the Public Reference Room may be obtained by calling the SEC at 1-800-SEC-0330.

Employees and Contractors

As of December 31, 2017, we had 11 full-time and 1 part-time employee in the US, and 3 full-time and 1 part-time employee in Europe. We believe our employee relations are positive.

In addition to our full-time employees, a substantial number of contractors provide various services for our corporate operations. We have contract management of our clinical trials and contract manufacturing of our products.

ITEM 1A. RISK FACTORS

Our business, financial condition, operating results and prospects are subject to the following material risks. Additional risks and uncertainties not presently foreseeable to us may also impair our business operations. If any of the following risks actually occurs, our business, financial condition or operating results could be materially adversely affected. In such case, the trading price of our common stock could decline, and our stockholders may lose all or part of their investment in the shares of our common stock.

Risks Related to our Operations

We will need to raise substantial funds, on an ongoing basis, for general corporate purposes and operations, including our clinical trials. Such funding may not be available or may not be available on acceptable terms.

We will need substantial additional funding, on an ongoing basis, in order to continue execution of our clinical trials, to move our product candidates towards commercialization, to continue prosecution and maintenance of our large patent portfolio, to continue development and optimization of our manufacturing and distribution arrangements, and for other corporate purposes. Any financing, if available, may include restrictive covenants and provisions that could limit our ability to take certain actions, preference provisions for the investors, and/or discounts, warrants, anti-dilution rights, the provision of collateral, or other incentives. Any financing will involve issuance of equity and/or debt, and such issuances will be dilutive to existing shareholders. There can be no assurance that we will be able to complete any of the financings, or that the terms for such financings will be acceptable. If we are unable to obtain additional funds on a timely basis or on acceptable terms, we may be required to curtail or cease some or all of our operations at any time.

We are likely to continue to incur substantial losses, and may never achieve profitability.

As of December 31, 2017, we had net cash outflows flows from operations, since inception. We may never achieve or sustain profitability.

Our auditors have issued a "going concern" audit opinion.

Our independent auditors have indicated in their report on our December 31, 2017 financial statements that there is substantial doubt about our ability to continue as a going concern. We have received such a "going concern" opinion each of the preceding years for more than a decade. A "going concern" opinion indicates that the financial statements have been prepared assuming we will continue as a going concern and do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets, or the amounts and classification of liabilities that may result if we do not continue as a going concern. Therefore, you should not rely on our consolidated balance sheet as an indication of the amount of proceeds that would be available to satisfy claims of creditors, and potentially be available for distribution to stockholders, in the event of liquidation.

Our management and our independent auditors have identified certain internal control deficiencies, which our management and our independent auditor believe constitute material weaknesses although they did not result in any adjustments.

In connection with the preparation of our financial statements for the year ended December 31, 2017, and prior years, our management and our independent auditor identified certain internal control deficiencies that, in the aggregate, represent material weaknesses, including the following:

- Lack of controls in place, including those surrounding related party transactions, to ensure that all material transactions and developments impacting the financial statements are reflected and properly recorded.

- Design deficiencies that do not meet stated control objectives that elevate the level of risk of a material misstatement to our financial statements.

- Policies and procedures with respect to the review, supervision and monitoring of our accounting operations throughout the organization were either not designed and in place or not operating effectively.

Our ability to retain or attract qualified individuals to serve on our Board and to take on key management or other roles within our Company is also uncertain. Our failure to successfully complete the remediation of the existing weaknesses could lead to heightened risk for financial reporting mistakes and irregularities, and/or lead to a loss of public confidence in our internal controls that could have a negative effect on the market price of our common stock.

As a company with a novel technology and unproven business strategy, an evaluation of our business and prospects is difficult.

We are still in the process of developing our product candidates through clinical trials. Our technology is novel and involves mobilizing the immune system to fight a patient's cancer. Immune therapies have been pursued by many parties for decades, and have experienced many failures. In addition, our technology involves personalized treatment products, a new approach to medical products that involves new product economics and business strategies, which have not yet been shown to be commercially feasible or successful. We have not yet gone through scale-up of our operations to commercial scale. The novelty of our technology, product economics, and business strategy, and the limited scale of our operations to date, makes it difficult to assess our prospects for generating revenues commercially in the future.

We will need to expand our management and technical personnel as our operations progress, and we may not be able to recruit such additional personnel and/or retain existing personnel.

As of December 31, 2017, we had 11 full-time and 1 part-time employees in the US, and 3 full-time and 1 part-time employees in Europe. Of this group, only five employees are considered Management. The rest of our personnel are retained on a consulting or contractor basis. Many biotech companies would typically have a larger number of employees by the time they reach late stage clinical trials. Such trials and other programs require extensive management capabilities, activities and skill sets, including scientific, medical, regulatory (for FDA and foreign regulatory counterparts), manufacturing, distribution and logistics, site management, reimbursement, business, financial, legal, public relations outreach to both the patient community and physician community, intellectual property, administrative, regulatory (SEC), investor relations and other.

In order to fully perform all these diverse functions, with trials and programs under way at many sites across the U.S. and in Europe, we may need to expand our management, technical and other personnel. However, with respect to management and technical personal, the pool of such personnel with expertise and experience with living cell products, such as our DCVax immune cell product, is very limited. In addition, we are a small company with limited resources, our business prospects are uncertain and our stock price is volatile. For some or all of such reasons, we may not be able to recruit all the management, technical and other personnel we need, and/or we may not be able to retain all of our existing personnel. In such event, we may have to continue our operations with a small team of personnel, and our business and financial results may suffer.

We rely at present on third-party contract manufacturers. As a result, we may be at risk for capacity limitations and/or supply disruptions.

We currently rely upon Cognate BioServices, Inc., or Cognate, to produce all of our DCVax product candidates in the U.S., and we currently rely upon Advent BioServices Ltd., or Advent, to produce our DCVax products for Europe. Until February 2018, Cognate BioServices was owned by Toucan Capital Fund III, L.P., one of our stockholders who is an affiliate. Advent continues to be owned by Toucan Capital Fund III. We have an agreement in place with Cognate BioServices pursuant to which Cognate BioServices has agreed to provide manufacturing and other services for the clinical trials and initial potential commercialization, in connection with our Phase III clinical trial of DCVax-L in brain cancer, and other programs. The agreement requires us to make certain minimum monthly payments to Cognate BioServices in order to have dedicated manufacturing capacity available for our products, irrespective of whether we actually order any DCVax products. The agreement also specifies the amounts we must pay for Cognate BioServices' manufacturing of DCVax products for patients. We are in the process of finalizing an agreement with Advent, similar to the agreement with Cognate.

Due to the large expansion of our Phase III trial with DCVax-L for brain cancer, and initiation of the trial in Europe, as well as initiation of our DCVax-Direct program, and certain advanced product development work, additional services that are required for logistics, distribution and tracking, and other pending programs, and the need for expanded manufacturing capacity, we entered into four new agreements with Cognate BioServices in January, 2014, for our DCVax-L and DCVax-Direct programs, Ancillary Services and Manufacturing Expansion Services. However, there can be no assurance that these expanded agreements will be sufficient. The agreements involved substantial upfront payments and provided for payment of at least half of all invoices to be paid in common stock and warrants of the Company for a limited period of time, and the remainder of the invoice amounts to be paid in cash. The stock and warrants were subject to a lock-up period, and were originally subject to most favored nation treatment with respect to terms provided to other investors or creditors (including with respect to any warrants), however, the most favored nation provisions were removed and the remaining lock-up was terminated in 2016. The agreements may cover commercial as well as clinical activities, and will only be terminable early by either party for uncured material breach by the other party, although we can also suspend or stop our program at any time, and pay a fee under the agreements.

We have been in breach of the services agreements with Cognate on numerous occasions, including as of December 31, 2017, primarily for non-payment. Since Cognate is now owned by institutional investors, and Toucan no longer has any ownership or operational interests in Cognate, our breaches of the services agreements may not be tolerated in the future as they have been in the past, and if we continue to breach the services agreements, for non-payment or otherwise, Cognate could terminate these agreements.

We are in the process of finalizing agreements with Advent BioServices for manufacturing of DCVax products in the U.K. Although Advent is owned by Toucan, if we breach these agreements, such breaches may not be tolerated as were breaches of the Cognate BioServices agreements in the past, and Advent could cease providing services and/or terminate the agreements.

Since Cognate and Advent are now separate companies with different owners, and Cognate has no operations in Europe and Advent has no operations in the U.S., the manufacturing of our products will not be conducted or overseen by a single company. Advent was just spun off from Cognate in Q4 of 2016, and as such is relatively new as a standalone company. It is not yet clear whether or to what extent it will be feasible for Cognate to supervise or advise on the manufacturing in the U.K. Having separate manufacturers in the U.S. and Europe, and/or having a relatively recent spin off manufacturer in the U.K., could result in a lack of consistency or continuity in the manufacturing of DCVax products.

We have exited from our manufacturing arrangements in Germany and Israel, and we are consolidating our manufacturing arrangements in the U.K. This involves development of new facilities and operations in the U.K. Such facilities or operations may take more time and involve more costs than anticipated, and/or may not obtain the necessary approvals.

Our intention is for the U.K. facility to manufacture DCVax products for the whole European region. With the impending exit of the U.K. from the European Union (Brexit), it is unclear whether it will be feasible for U.K.-based manufacturing to supply DCVax products throughout Europe. It could be years before the full legal and regulatory rules and requirements become clear. We anticipate that the manufacturing facilities in the U.K. will eventually obtain the necessary approvals, and will be able to supply DCVax products, for clinical trials or otherwise, anywhere in Europe; however, this may not turn out to be feasible, for regulatory, operational and/or logistical reasons.

Problems with the manufacturing facilities, processes or operations of Cognate BioServices or Advent BioServices could result in a failure to produce, or a delay in producing adequate supplies of our DCVax product candidates. A number of factors could cause interruptions or delays, including the inability of a supplier to provide raw materials, equipment malfunctions or failures, damage to a facility due to natural disasters or otherwise, changes in FDA or European regulatory requirements or standards that require modifications to our manufacturing processes, action by the FDA or European regulators, or by us that results in the halting or slowdown of production of components or finished products due to regulatory issues, our manufacturers going out of business or failing to produce product as contractually required, and/or other similar factors. Because manufacturing processes for our DCVax product candidates are highly complex, require specialized facilities (dedicated exclusively to DCVax production) and personnel that are not widely available in the industry, involve equipment and training with long lead times, and are subject to lengthy regulatory approval processes, alternative qualified production capacity may not be available on a timely basis or at all. Also, as noted above, Cognate or Advent could choose to terminate its agreements with us if we are in breach, or if we undergo a change of control. Difficulties, delays or interruptions in the manufacturing and supply and delivery of our DCVax product candidates could require us to stop enrolling new patients into our trials, and/or require us to stop the trials or other programs, stop the treatment of patients in the trials or other programs, increase our costs, damage our reputation and, if our product candidates are approved for sale, cause us to lose revenue or market share if our manufacturers are unable to timely meet market demands.

The manufacturing of our product candidates will have to be greatly scaled up for commercialization, and neither we nor other parties in the industry have experience with such scale-up.

As is the case with any clinical trial, our Phase III clinical trial of DCVax-L for GBM involves a number of patients that is a small fraction of the number of potential patients for whom DCVax-L may be applicable in the commercial market. The same will be true of our other clinical programs with our other DCVax product candidates. If our DCVax-L, and/or other DCVax product candidates, are approved for commercial sale, it will be necessary to greatly scale up the volume of manufacturing, far above the level needed for the trials. Neither we nor our contract manufacturers have experience with such scale-up. In addition, there are very few consultants or advisors in the industry who have such experience and can provide guidance or assistance, because active immune therapies such as DCVax are a fundamentally new category of product in two major ways: these active immune therapy products consist of living cells, not chemical or biologic compounds, and the products are personalized. To our knowledge, no such products have successfully completed the necessary scale-up for commercialization without material difficulties. For example, Dendreon Corporation encountered substantial difficulties trying to scale up the manufacturing of its Provenge® product for commercialization.

The necessary specialized facilities, equipment and personnel may not be available or obtainable for the scale-up of manufacturing of our product candidates.

The manufacture of living cells requires specialized facilities, equipment and personnel which are entirely different than what is required for the manufacturing of chemical or biologic compounds. Scaling up the manufacturing of living cell products to volume levels required for commercialization will require enormous amounts of these specialized facilities, equipment and personnel - especially where, as in the case of our DCVax product candidates, the product is personalized and must be made for each patient individually. Since living cell products are so new, and have barely begun to reach commercialization, the supply of the specialized facilities, equipment and personnel needed for them has not yet developed. It may not be possible for us or our manufacturers to obtain all of the specialized facilities, equipment and personnel needed for commercialization of our DCVax product candidates. This could delay or halt our commercialization.

Our technology is novel, involves complex immune system elements, and may not prove to be effective.

Data already obtained, or in the future obtained, from pre-clinical studies and clinical trials do not necessarily predict the results that will be obtained from later pre-clinical studies and clinical trials. Over the course of several decades, there have been many different immune therapy product designs - and many product failures and company failures. To our knowledge, to date, only one active immune therapy, Provenge, has been approved by the FDA. The human immune system is complex, with many diverse elements, and the state of scientific understanding of the immune system is still limited. Some immune therapies previously developed by other parties showed surprising and unexpected toxicity in clinical trials. Other immune therapies developed by other parties delivered promising results in early clinical trials, but failed in later stage clinical trials.

To date, we have only completed early stage trials with our first product (DCVax-L) in limited numbers of patients. Although we believe the results of those trials were quite positive, those results may not be achieved in our later stage clinical trials, such as the 331-patient Phase III trial we are now conducting for GBM, and our product candidates may not ultimately be found to be effective. Further, although the safety profile of our DCVax-L product was excellent in the early stage clinical trials, toxicity may be seen as we treat larger numbers of patients in late stage clinical trials. If such toxicity occurs, it could limit, delay or stop further clinical development or commercialization of our DCVax-L product.

We have only conducted the Phase I portion of our first-in-man Phase I/II clinical trial with our DCVax Direct product, after prior early stage trials with DCVax-L and DCVax-Prostate. Although the early results have not indicated any significant toxicity, we do not yet know what efficacy or toxicity DCVax-Direct may show in a larger sample of human patients. This product may not ultimately be found to be effective, and/or it may be found to be toxic, which could limit, delay or stop clinical development or commercialization of DCVax-Direct.

Clinical trials for our product candidates are expensive and time consuming, and their outcome is uncertain.

The process of obtaining and maintaining regulatory approvals for new therapeutic products is expensive, lengthy and uncertain. Costs and timing of clinical trials may vary significantly over the life of a project owing to any or all of the following non-exclusive reasons:

- the duration of the clinical trial;
- the number of sites included in the trials;
- the countries in which the trial is conducted;
- the length of time required and ability to enroll eligible patients;
- the number of patients that participate in the trials;
- the number of doses that patients receive;
- the drop-out or discontinuation rates of patients;
- per patient trial costs;
- third party contractors failing to comply with regulatory requirements or meet their contractual obligations to us in a timely manner;
- our final product candidates having different properties in humans than in laboratory testing;
- the need to suspend or terminate our clinical trials;
- insufficient or inadequate supply or quality of necessary materials to conduct our trials;
- potential additional safety monitoring, or other conditions required by the FDA or comparable foreign regulatory authorities regarding the scope or design of our clinical trials, or other studies requested by regulatory agencies;
- problems engaging independent review Boards, or IRBs, to oversee trials or in obtaining and maintaining IRB approval of studies;
- the duration of patient follow-up;
- the efficacy and safety profile of a product candidate;
- the costs and timing of obtaining regulatory approvals; and
- the costs involved in enforcing or defending patent claims or other intellectual property rights.

Late stage clinical trials, such as our Phase III clinical trial for GBM patients, are especially expensive, typically requiring tens of millions of dollars, and take years to reach their outcomes. Such outcomes often fail to reproduce the results of earlier trials. It is often necessary to conduct multiple late stage trials (including multiple Phase III trials) in order to obtain sufficient results to support product approval, which further increases the expense. Sometimes trials are further complicated by changes in requirements while the trials are under way (for example, when the standard of care changes for the disease that is being studied in the trial). For example, while the Company's lead program, the Phase III clinical trial of DCVax-L for brain cancer, has been under way, there has been a very large proliferation of new treatments in various stages of development, as well as some new product approvals, for brain cancer. Any of our current or future product candidates could take a significantly longer time to gain regulatory approval than we expect, or may never gain approval, either of which could delay or stop the commercialization of our DCVax product candidates.

We may be required to suspend or discontinue clinical trials due to unexpected side effects or other safety risks that could preclude approval of our product candidates.

Our clinical trials may be suspended at any time for a number of reasons. For example, we may voluntarily suspend or terminate our clinical trials if at any time we believe that they present an unacceptable risk to the clinical trial patients. In addition, the FDA or other regulatory agencies may order the temporary or permanent discontinuation of our clinical trials at any time if they believe that the clinical trials are not being conducted in accordance with applicable regulatory requirements or that they present an unacceptable safety risk to the clinical trial patients.

Administering any product candidate to humans may produce undesirable side effects. These side effects could interrupt, delay or halt clinical trials of our product candidates and could result in the FDA or other regulatory authorities denying further development or approval of our product candidates for any or all targeted indications. Ultimately, some or all of our product candidates may prove to be unsafe for human use. Moreover, we could be subject to significant liability if any volunteer or patient suffers, or appears to suffer, adverse health effects as a result of participating in our clinical trials.

We have limited experience in conducting and managing clinical trials, and we rely on third parties to assist with these services.

We rely on third parties to assist us, on a contract services basis, in managing and monitoring all of our clinical trials. We do not have experience conducting late stage clinical trials by ourselves without third party service firms, nor do we have experience in supervising such third parties in managing late stage, multi-hundred patient clinical trials, other than our current Phase III trial for GBM. Our lack of experience and/or our reliance on these third-party service firms may result in delays or failure to complete these trials successfully and on time. If the third parties fail to perform, we may not be able to find sufficient alternative suppliers of those services in a reasonable time period, or on commercially reasonable terms, if at all. If we were unable to obtain alternative suppliers of such services, we might be forced to delay, suspend or stop our Phase III trial for GBM.

We may fail to comply with regulatory requirements.

Our success will be dependent upon our ability, and our collaborative partners' abilities, to maintain compliance with regulatory requirements in multiple countries, including current good manufacturing practices, or cGMP, and safety reporting obligations. The failure to comply with applicable regulatory requirements can result in, among other things, fines, injunctions, civil penalties, total or partial suspension of regulatory approvals, refusal to approve pending applications, recalls or seizures of products, operating and production restrictions and criminal prosecutions.

Regulatory approval of our product candidates may be withdrawn at any time.

After any regulatory approval has been obtained for medicinal products (including any early approval such as our Hospital Exemption approval in Germany and/or our reimbursement eligibility determination in Germany), the product and the manufacturer are subject to continual review, including the review of adverse experiences and clinical results that are reported after our products are made available to patients, and there can be no assurance that such approval will not be withdrawn or restricted. Regulators may also subject approvals to restrictions or conditions, or impose post-approval obligations on the holders of these approvals, and the regulatory status of such products may be jeopardized if such obligations are not fulfilled. If post-approval studies are required, such studies may involve significant time and expense.

The manufacturer and manufacturing facilities we use to make any of our products will also be subject to periodic review and inspection by the FDA or EMA, as applicable. The discovery of any new or previously unknown problems with the product, manufacturer or facility may result in restrictions on the product or manufacturer or facility, including withdrawal of the product from the market. We will continue to be subject to the FDA or the European Medicines Agency, or EMA, requirements, as applicable, governing the labeling, packaging, storage, advertising, promotion, recordkeeping, and submission of safety and other post-market information for all of our product candidates, even those that the FDA or EMA, as applicable, had approved. If we fail to comply with applicable continuing regulatory requirements, we may be subject to fines, suspension or withdrawal of regulatory approval, product recalls and seizures, operating restrictions and other adverse consequences.

Our Operations under early access programs, such as the hospital exemption in Germany, may not be successful.

There is not much accumulated or available experience, information or precedents in regard to early access programs such hospital exemption programs and/or similar programs, especially for new types of treatments such as immune therapies. Our DCVax-L product for glioma brain cancers is one of the first products to receive a Hospital Exemption approval in Germany. Establishing operations under this Hospital Exemption will require us to establish and implement new operational, contractual, financial and other arrangements with physicians, hospitals, patients and others. We may not be successful in establishing and implementing such arrangements, and/or such arrangements may not be financially satisfactory or viable.

We may not be successful in negotiating reimbursement.

The reimbursement eligibility determination that we have received in Germany for our DCVax-L product for brain cancer allows us to negotiate reimbursement arrangements on a case by case basis, but does not ensure a positive outcome. We must negotiate with hospitals and Sickness Funds on a patient by patient basis. Reimbursement prior to commercial approval (the current stage of our DCVax-L programs) is rare, and we do not have substantial precedents to refer to. Our DCVax-L product involves a different cost structure than traditional drugs and may require different reimbursement arrangements. The reimbursement arrangements also may be applied on a patient by patient basis. We may not be successful in negotiating or obtaining reimbursement, or obtaining it on acceptable or viable terms.

Our product candidates will require a different distribution model than conventional therapeutic products, and this may impede commercialization of our product candidates.

Our DCVax product candidates consist of living human immune cells. Such products are entirely different from chemical or biologic drugs, and require different handling, distribution and delivery than chemical or biologic drugs. One crucial difference is that the biomaterial ingredients (immune cells and tumor tissue) from which we make DCVax products and the finished DCVax products themselves are subject to time constraints in the shipping and handling. The biomaterial ingredients come from the medical centers to the manufacturing facility fresh and unfrozen, and must arrive within a certain time and in usable condition. Performance failures by the medical center or the courier company can result in biomaterials that are not usable, in which case it may not be possible to make DCVax product for the patient involved. The finished DCVax products are frozen, and must remain frozen throughout the process of distribution and delivery to the medical center or physician's office, until the time of administration to the patient, and cannot be handled at room temperature until then. In addition, our DCVax product candidates are personalized and they involve ongoing treatment cycles over several years for each patient. Each product shipment for each patient must be tracked and managed individually. For all of these reasons, among others, we will not be able to simply use the distribution networks and processes that already exist for conventional drugs. It may take time for shipping companies, hospitals, pharmacies and physicians to adapt to the requirements for handling, distribution and delivery of these products, which may adversely affect our commercialization.

Our product candidates will require different marketing and sales methods and personnel than conventional therapeutic products. Also, we lack sales and marketing experience. These factors may result in significant difficulties in commercializing our product candidates.

The commercial success of any of our product candidates will depend upon the strength of our sales and marketing efforts. We do not have a marketing or sales force and have no experience in marketing or sales of products like our lead product, DCVax-L for GBM. To fully commercialize our product candidates, we will need to recruit and train marketing staff and a sales force with technical expertise and ability to manage the distribution of our DCVax-L for GBM. As an alternative, we could seek assistance from a corporate partner or a third-party services firm with a large distribution system and a large direct sales force. However, since our DCVax products are living cell, immune therapy products, and these are a fundamentally new and different type of product than are on the market today, we would still have to train such partner's or such services firm's personnel about our products, and would have to make changes in their distribution processes and systems to handle our products. We may be unable to recruit and train effective sales and marketing forces or our own, or of a partner or a services firm, and/or doing so may be more costly and difficult than anticipated. Such factors may result in significant difficulties in commercializing our product candidates, and we may be unable to generate significant revenues.

The availability and amount of potential reimbursement for our product candidates by government and private payers is uncertain and may be delayed and/or inadequate.

The availability and extent of reimbursement by governmental and/or private payers is essential for most patients to be able to afford expensive treatments, such as cancer treatments. In the United States, the principal decisions about reimbursement for new medicines are typically made by the Centers for Medicare & Medicaid Services, or CMS, an agency within the U.S. Department of Health and Human Services, as CMS decides whether and to what extent a new medicine will be covered and reimbursed under Medicare. Private payers tend to follow CMS to a substantial degree. It is difficult to predict what CMS will decide with respect to reimbursement for fundamentally novel products such as ours, as there is no body of established practices and precedents for these new products. To date, we are aware of only one active immune therapy that has reached the stage of a reimbursement decision (Provenge). Although CMS approved coverage and reimbursement for Provenge, and private payers followed suit, there remain substantial questions and concerns about reimbursement for Provenge, and such questions and concerns appear to be impeding sales.

Reimbursement agencies in Europe can be even more conservative than CMS in the U.S. A number of cancer drugs which have been approved for reimbursement in the U.S. have not been approved for reimbursement in certain European countries, and/or the level of reimbursement approved in Europe is lower than in the U.S.

Various factors could increase the difficulties for our DCVax products to obtain reimbursement. Costs and/or difficulties associated with the reimbursement of Provenge could create an adverse environment for reimbursement of other immune therapies, such as our DCVax products. Approval of other competing products (drugs and/or devices) for the same disease indications could make the need for our products and the cost-benefit balance seem less compelling. The cost structure of our product is not a typical cost structure for medical products, as the majority of our costs are incurred up front, when the manufacturing of the personalized product is done. Our atypical cost structure may not be accommodated in any reimbursement for our products. If we are unable to obtain adequate levels of reimbursement, our ability to successfully market and sell our product candidates will be adversely affected.

The manner and level at which reimbursement is provided for services related to our product candidates (e.g., for administration of our product to patients) are also important. If the reimbursement for such services is inadequate, that may lead to physician resistance and adversely affect our ability to market or sell our products.

The methodology under which CMS makes coverage and reimbursement determinations is subject to change, particularly because of budgetary pressures facing the Medicare program. For example, the Medicare Prescription Drug, Improvement, and Modernization Act, or Medicare Modernization Act, enacted in 2003, provided for a change in reimbursement methodology that has reduced the Medicare reimbursement rates for many drugs, including oncology therapeutics. The Affordable Care Act may also result in changes in reimbursement arrangements that adversely affect the prospects for reimbursement of our products.

In markets outside the U.S., the prices of medical products are subject to direct price controls and/or to reimbursement with varying price control mechanisms, as part of national health systems. In general, the prices of medicines under such systems are substantially lower than in the U.S. Some jurisdictions operate positive and/or negative list systems under which products may only be marketed once a reimbursement price has been agreed. Other countries allow companies to fix their own prices for medicines, but monitor and control company profits. The downward pressure on health care costs in general, particularly prescription drugs, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. Accordingly, in markets outside the U.S., the reimbursement for our products may be reduced compared with the U.S. and may be insufficient to generate commercially reasonable revenues and profits.

Competition in the biotechnology and biopharmaceutical industry is intense, rapidly expanding and most of our competitors have substantially greater resources than we do.

The biotechnology and biopharmaceutical industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary products. A growing number of other companies, such as Juno, Kite Bellicum, Argos, Agenus, Asterias, Dandrit, Immunicum, Sotio, Tocagen and many others, are actively involved in the research and development of immune therapies or cell-based therapies for cancer. In addition, other novel technologies for cancer are under development or commercialization, such as checkpoint inhibitor drugs (which are being rapidly developed by numerous big pharma companies including BMS, Merck, Pfizer, Astra Zeneca, Roche and others) and various T cell based therapies (which are also being rapidly developed by numerous companies with extraordinary resource backing), as well as the electro-therapy device of NovoCure. Additionally, many companies are actively involved in the research and development of monoclonal antibody-based cancer therapies. Currently, a substantial number of antibody-based products are approved for commercial sale for cancer therapy, and a large number of additional ones are under development, including late stage trials. Many other third parties compete with us in developing alternative therapies to treat cancer, including: biopharmaceutical companies; biotechnology companies; pharmaceutical companies; academic institutions; and other research organizations, as well as some medical device companies (e.g., NovoCure and MagForce Nano Technologies AG).

We face extensive competition from companies developing new treatments for brain cancer. These include a variety of immune therapies, as mentioned above (including T cell based therapies and checkpoint inhibitor drugs), as well as a variety of small molecule drugs and biologics drugs. There are also a number of existing drugs used for the treatment of brain cancer that may compete with our product, including, Avastin® (Roche Holding AG), Gliadel® (Eisai Co. Ltd.), and Temodar® (Merck& Co., Inc.), as well as NovoCure's electrotherapy device.

Most of our competitors have significantly greater financial resources and expertise in research and development, manufacturing, pre-clinical testing, conducting clinical trials, obtaining regulatory approvals and marketing and sales than we do. Smaller or early-stage companies may also prove to be significant competitors, particularly if they enter into collaborative arrangements with large and established companies.

These third parties compete with us in recruiting and retaining qualified scientific and management personnel and collaborators, as well as in acquiring technologies complementary to our programs, and in obtaining sites for our clinical trials and enrolling patients.

Our competitors may complete their clinical development more rapidly than we and our products do, may develop more effective or affordable products, or may achieve earlier or longer patent protection or earlier product marketing and sales. Any products developed by us may be rendered obsolete and non-competitive.

Competing generic medicinal products may be approved.

In the E.U., there exists a process for approval of generic biological medicinal products once patent protection and other forms of data and market exclusivity have expired. Arrangements for approval of generic biologics products exist in the U.S. as well, and the FDA has begun approving bio-similar products. Other jurisdictions may approve generic biologic medicinal products as well. If generic biologic medicinal products are approved, competition from such products may substantially reduce sales of our products.

We may be exposed to potential product liability claims, and our existing insurance may not cover these claims, in whole or in part. In addition, insurance against such claims may not be available to us on reasonable terms in the future, if at all.

Our business exposes us to potential product liability risks that are inherent in the testing, manufacturing, marketing, sale and use of therapeutic products. We have insurance coverage but this insurance may not cover any claims made. In the future, insurance coverage may not be available to us on commercially reasonable terms (including acceptable cost), if at all. Insurance that we obtain may not be adequate to cover claims against us. Regardless of whether they have any merit or not, and regardless of their eventual outcome, product liability claims may result in substantially decreased demand for our product candidates, injury to our reputation, withdrawal of clinical trial participants or physicians, and/or loss of revenues. Thus, whether or not we are insured, a product liability claim or product recall may result in losses that could be material.

We may be subject to environmental regulatory requirements, and could fail to meet such requirements, and we do not carry insurance against environmental damage or injury claims.

We may need to store, handle, use and dispose of controlled hazardous, radioactive and biological materials in our business. Our development activities may result in our becoming subject to regulatory requirements, and if we fail to comply with applicable requirements we could be subject to substantial fines and other sanctions, delays in research and production, and increased operating costs. In addition, if regulated materials were improperly released at our current or former facilities or at locations to which we send materials for disposal, we could be liable for substantial damages and costs, including cleanup costs and personal injury or property damages, and we could incur delays in research and production and increased operating costs.

Insurance covering certain types of claims of environmental damage or injury resulting from the use of these materials is available but can be expensive and is limited in its coverage. We have no insurance specifically covering environmental risks or personal injury from the use of these materials and if such use results in liability, our business may be seriously harmed.

Collaborations play an important role in our business, and could be vulnerable to competition or termination.

We work with scientists and medical professionals at a variety of academic and other institutions, some of whom have conducted research for us or have assisted in developing our research and development strategy. These scientists and medical professionals are collaborators, not our employees. They may have commitments to, or contracts with, other institutions or businesses (including competitors) that limit the amount of time they have available to work with us. We have little control over these individuals. We can only expect that they devote time to us and our programs as required by any license, consulting or sponsored research agreements we may have with them. In addition, these individuals may have arrangements with other companies to assist in developing technologies that may compete with our products. If these individuals do not devote sufficient time and resources to our programs, or if they provide substantial assistance to our competitors, our business could be seriously harmed.

The success of our business strategy may partially depend upon our ability to develop and maintain our collaborations and to manage them effectively. Due to concerns regarding our ability to continue our operations or the commercial feasibility of our personalized DCVax product candidates, these third parties may decide not to conduct business with us or may conduct business with us on terms that are less favorable than those customarily extended by them. If either of these events occurs, our business could suffer significantly.

We may have disputes with our collaborators, which could be costly and time consuming. Failure to successfully defend our rights could seriously harm our business, financial condition and operating results. We intend to continue to enter into collaborations in the future. However, we may be unable to successfully negotiate any additional collaboration and any of these relationships, if established, may not be scientifically or commercially successful.

Our business could be adversely affected by new legislation and/or product related issues.

Changes in applicable legislation and/or regulatory policies or discovery of problems with the product, production process, site or manufacturer may result in delays in bringing products to market, the imposition of restrictions on the product's sale or manufacture, including the possible withdrawal of the product from the market, or may otherwise have an adverse effect on our business.

Our business could be adversely affected by animal rights activists.

Our business activities have involved animal testing and could involve further such testing, as such testing is required before new medical products can be tested in clinical trials in human patients. Animal testing has been the subject of controversy and adverse publicity. Some organizations and individuals have attempted to stop animal testing by pressing for legislation and regulation in these areas. To the extent that the activities of such groups are successful, our business could be adversely affected. Negative publicity about us, our pre-clinical trials and our product candidates could also adversely affect our business.

Multiple late stage clinical trials of DCVax-L for GBM, our lead product, may be required before we can obtain regulatory approval.

Typically, companies conduct multiple late stage clinical trials of their product candidates before seeking product approval. Our current Phase III 331-patient clinical trial of DCVax-L for GBM is our first late stage trial. We may be required to conduct additional late stage trials with DCVax-L for GBM before we can obtain product approval. This would substantially delay our commercialization. In addition, our Phase III trial of DCVax-L was placed on a partial clinical hold for new screening for enrollment in 2015. Although the FDA lifted its hold in February 2017 as previously reported by the Company, the Company had already closed enrollment with 331 of the planned 348 patients. Since we did not enroll the last 17 of the planned 348 patients, this could adversely affect the statistical and other analyses of our Phase III trial results, and could make it more difficult to seek product approval or more likely that further trials could be required. In addition, a rapidly growing number of products are under development for brain cancer, including immunotherapies such as checkpoint inhibitor drugs and T cell based therapies, and some (e.g., NovoCure's device) have been approved in the U.S. It is possible that the standard of care for brain cancer could change while our Phase III trial is still under way. This could necessitate further clinical trials with our DCVax-L product candidate for brain cancer.

Changes in manufacturing methods for DCVax-L could require us to conduct equivalency studies and/or additional clinical trials.

With biologics products, "the process is the product": i.e., the manufacturing process is considered to be as integral to the product as is the composition of the product itself. If any changes are made in the manufacturing process, and such changes are considered material by the regulatory authorities, the company sponsor may be required to conduct equivalency studies to show that the product is equivalent under the changed manufacturing processes as under the original manufacturing processes, and/or the company sponsor may be required to conduct additional clinical trials. In addition, if there are multiple manufacturing locations, equivalency studies may be required to show that the products produced in the respective facilities are substantially the same. Our manufacturing processes have undergone some changes during the early clinical trials, and we have multiple manufacturing locations. Accordingly, we may be required to conduct equivalency studies, and/or additional clinical trials, before we can obtain product approval, unless the regulatory authorities are satisfied that the changes in processes do not affect the quality, efficacy or safety of the product, and satisfied that the products made in each manufacturing location are substantially the same.

We may not receive regulatory approvals for our product candidates or there may be a delay in obtaining such approvals.

Our products and our ongoing development activities are subject to regulation by regulatory authorities in the countries in which we and our collaborators and distributors wish to test, manufacture or market our products. For instance, the FDA will regulate the product in the U.S. and equivalent authorities, such as the EMA will regulate in Europe. Regulatory approval by these authorities will be subject to the evaluation of data relating to the quality, efficacy and safety of the product for its proposed use, and there can be no assurance that the regulatory authorities will find our data sufficient to support product approval of DCVax-L or DCVax-Direct. In addition, the endpoint against which the data is measured must be acceptable to the regulatory authorities. The primary endpoint of our Phase III trial of DCVax-L is progression free survival. Sometimes regulators have accepted this endpoint, and sometimes not. There can be no assurance that the regulatory authorities will find this to be an approvable endpoint for Glioblastoma multiforme cancer.

The time period required to obtain regulatory approval varies between countries. In the U.S., for products without "Fast Track" status, it can take up to 18 months after submission of an application for product approval to receive the FDA's decision. Even with Fast Track status, FDA review and decision can take up to 12 months. At present, we do not have Fast Track status for our lead product, DCVax-L for GBM. We plan to apply for Fast Track status, but there can be no assurance that FDA will grant us such status for DCVax-L.

Different regulators may impose their own requirements and may refuse to grant, or may require additional data before granting, an approval, notwithstanding that regulatory approval may have been granted by other regulators. Regulatory approval may be delayed, limited or denied for a number of reasons, including insufficient clinical data, the product not meeting safety or efficacy requirements or any relevant manufacturing processes or facilities not meeting applicable requirements as well as case load at the regulatory agency at the time.

We may not obtain or maintain the benefits associated with orphan drug status, including market exclusivity.

Although our lead product, DCVax-L for GBM, has been granted orphan drug status in both the U.S. and the E.U., we may not receive the benefits associated with orphan drug designation (including the benefit providing for market exclusivity for a number of years). This may result from a failure to maintain orphan drug status, or result from a competing product reaching the market that has an orphan designation for the same disease indication. Under U.S. and E.U. rules for orphan drugs, if such a competing product reaches the market before ours does, the competing product could potentially obtain a scope of market exclusivity that limits or precludes our product from being sold in the U.S. for seven years or from being sold in the E.U. for ten years. Also, in the E.U., even after orphan status has been granted, that status is re-examined shortly prior to the product receiving any regulatory approval. The EMA must be satisfied that there is evidence that the product offers a significant benefit relative to existing therapies, in order for the therapeutic product to maintain its orphan drug status. Accordingly, our product candidates will have to re-qualify for orphan drug status prior to any potential product approval in the E.U.

Our intellectual property rights may be overturned, narrowed or blocked, and may not provide sufficient commercial protection for our product candidates, or third parties may infringe upon our intellectual property.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions and has in recent years been the subject of much litigation. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Patent laws afford only limited protection and may not protect our rights to the extent necessary to sustain any competitive advantage we may have. In addition, the laws of some foreign countries do not protect proprietary rights to the same extent as the laws of the United States, and we may encounter significant problems in protecting our proprietary rights in those countries. Moreover, patents and patent applications relating to living cell products are relatively new, involve complex factual and legal issues, and are largely untested in litigation - and as a result, are uncertain. Our pending and future patent applications may not result in patents being issued which adequately protect our technology or products or which effectively prevent others from commercializing the same or competitive technologies and products. As a result, we may not be able to obtain meaningful patent protection for our commercial products, and our business may suffer as a result. Third parties may challenge our existing patents, and such challenges could result in overturning or narrowing some of our patents. Even if our patents are not challenged, third parties could assert that their patents block our use of technology covered by some or all of our patents

As of December 31, 2017, we had 148 issued patents and 60 pending patent applications worldwide relating to our product candidates and related matters such as manufacturing processes. The issued patents expire at various dates from 2022 to 2028. Our issued patents may be challenged, and such challenges may result in reductions in scope, cancellations or invalidations. Our pending patent applications may not result in issued patents. Moreover, our patents and patent applications may not be sufficiently broad to prevent others from using substantially similar technologies or from developing competing products. We also face the risk that others may independently develop similar or alternative technologies, or design around our patented technologies. As a result, no assurance can be given that any of our pending or future patent applications will be granted, that the scope of any patent protection currently granted or that may be granted in the future will exclude competitors or provide us with competitive advantages, that any of the patents that have been or may be issued to us will be held valid if subsequently challenged, or that other parties will not claim rights to or ownership of our patents or other proprietary rights that we hold.

We have taken security measures (including execution of confidentiality agreements) to protect our proprietary information, especially proprietary information that is not covered by patents or patent applications. These measures, however, may not provide adequate protection for our trade secrets or other proprietary information. In addition, others may independently develop substantially equivalent proprietary information or techniques or otherwise gain access to our trade secrets.

We may be exposed to claims or lawsuits that our products infringe patents or other proprietary rights of other parties.

Our commercial success depends upon our ability and the ability of our collaborators to develop, manufacture, market and sell our product candidates and use our proprietary technologies without infringing the proprietary rights of third parties. We have not conducted a comprehensive freedom-to-operate review to determine whether our proposed business activities or use of certain of the technology covered by patent rights owned by us would infringe patents issued to third parties.

There is a substantial amount of litigation involving patent and other intellectual property rights in the biotechnology and biopharmaceutical industries generally. The patent landscape is especially uncertain in regard to cell therapy products, as it involves complex legal and factual questions for which important legal principles remain unresolved. We may become party to, or be threatened with, future adversarial proceedings or litigation regarding intellectual property rights with respect to our products and technology, including interference proceedings, Inter Partes Reexamination, or Post Grant Review before the U.S. Patent and Trademark Office. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future. If we are found to infringe a third party's intellectual property rights, we could be required to obtain a license from such third party to continue developing and marketing our products and technology. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. We could be forced, including by court order, to cease commercializing the infringing technology or product. In addition, we could be found liable for monetary damages. If the infringement is found to be willful, we could be liable for treble damages. A finding of infringement could prevent us from commercializing our product candidates or force us to cease some of our business operations, which could materially harm our business. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business.

We have already been exposed to one patent lawsuit by a large company, which we vigorously defended. Our defense resulted in the plaintiff withdrawing nearly all of the claims it filed, and in settlement of the last claims without our paying the plaintiff anything. However, the litigation was expensive and time consuming. We have recently also been exposed to claims (without a lawsuit) by a competitor asserting or implying (and commentaries by third parties based on the claims by our competitor) that a patent issued to our competitor covers our products. We believe these claims to be without merit. However, if a lawsuit for infringement were brought against us, there can be no assurance that a judge or jury would agree with our position, and in any event such litigation would be expensive and time consuming. In the future, we may again be exposed to claims by third parties - with or without merit - that our products infringe their intellectual property rights.

Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses, and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and 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. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. We may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace.

DCVax is our only technology in clinical development.

Unlike many pharmaceutical companies that have a number of products in development and which utilize many different technologies, we are dependent on the success of our DCVax platform technology. While the DCVax technology has a wide scope of potential use, and is embodied in several different product lines for different clinical situations, if the core DCVax technology is not effective or is toxic or is not commercially viable, our business could fail. We do not currently have other technologies that could provide alternative support for us.

Risks Related to our Common Stock

The market price of our common stock is volatile and can be adversely affected by several factors.

The share prices of publicly traded biotechnology and emerging pharmaceutical companies, particularly companies without consistent product revenues and earnings, can be highly volatile and are likely to remain highly volatile in the future. The price which investors may realize in sales of their shares of our common stock may be materially different than the price at which our common stock is quoted, and will be influenced by a large number of factors, some specific to us and our operations, and some unrelated to our operations. Such factors may cause the price of our stock to fluctuate frequently and substantially. Such factors may include large purchases or sales of our common stock, shorting of our stock, positive or negative events, commentaries or publicity relating to our company, management or products, or other companies, management or products, including other immune therapies for cancer or immune therapies or cancer therapies generally, positive or negative events relating to healthcare and the overall pharmaceutical and biotech sector, the publication of research by securities analysts and changes in recommendations of securities analysts, legislative or regulatory changes, and/or general economic conditions. In the past, shareholder litigation, including class action litigation, has been brought against other companies that experienced volatility in the market price of their shares and/or unexpected or adverse developments in their business. Whether or not meritorious, litigation brought against a company following such developments can result in substantial costs, divert management's attention and resources, and harm the company's financial condition and results of operations.

Our Common Stock is considered a "penny stock" and may be difficult to sell.

The Commission has adopted regulations which generally define "penny stock" to be an equity security that has a market price of less than $5.00 per share or an exercise price of less than $5.00 per share, subject to specific exemptions. Historically, the price of our Common Stock has fluctuated greatly. As of the date of this filing, the market price of our common stock is less than $5.00 per share, and therefore is a "penny stock" according to Commission rules. The "penny stock" rules impose additional sales practice requirements on broker-dealers who sell securities to persons other than established customers and accredited investors (generally those with assets in excess of $1,000,000 or annual income exceeding $200,000 or $300,000 together with their spouse). For transactions covered by these rules, the broker-dealer must make a special suitability determination for the purchase of securities and have received the purchaser's written consent to the transaction before the purchase. Additionally, for any transaction involving a penny stock, unless exempt, the broker-dealer must deliver, before the transaction, a disclosure schedule prescribed by the Commission relating to the penny stock market. The broker-dealer also must disclose the commissions payable to both the broker-dealer and the registered representative and current quotations for the securities. Finally, monthly statements must be sent disclosing recent price information on the limited market in penny stocks. These additional burdens imposed on broker-dealers may restrict the ability or decrease the willingness of broker-dealers to sell our common stock, and may result in decreased liquidity for our common stock and increased transaction costs for sales and purchases of our common stock as compared to other securities.

Toucan Capital and its affiliates, including Linda Powers and Cognate BioServices, are the principal holders of our shares of common stock, and this concentration of ownership may have a negative effect on the market price of our common stock.

As of December 31, 2017, Toucan Capital and its affiliates (which, at that time, included Cognate BioServices, Toucan Partners and Linda Powers, who also serves as our Chief Executive Officer and Chairperson of the Board of Directors), collectively, beneficially owned a significant percentage of our outstanding common stock on that date. This concentration of ownership could involve conflicts of interest, and may adversely affect the trading price of our common stock because investors may perceive disadvantages in owning stock of companies with controlling stockholders, including controlling stockholders who could have conflicts of interest. Toucan Capital and its affiliates (including Linda Powers and including Cognate BioServices until February 2018), have the ability to exert substantial influence over all matters requiring approval by our stockholders, including the election and removal of directors and any proposed merger, consolidation or sale of all or substantially all of our assets, as well as over our business plans, strategies or operations. This influence could have the effect of delaying, deferring or preventing a change in control, or impeding a merger or consolidation, takeover or other business combination or action that could be favorable to investors. Since the management buyout of Cognate BioServices in February 2018, Cognate BioServices is no longer an affiliate of Toucan Capital or Linda Powers; however, Cognate continues to be the beneficial owner of a significant percentage of our outstanding common stock, and could affect our stock. In addition, due in part to certain debt repayment to Ms. Powers by Cognate through assignment of NWBio stock held by Cognate, Ms Powers [has become][continues to be] the beneficial owner of a material percentage of our common stock. These concentrations of ownership could result in adverse effects on the Company and/or its stock.

The requirements of the Sarbanes-Oxley Act of 2002 and other U.S. securities laws impose substantial costs, and may drain our resources and distract our management.

We are subject to certain of the requirements of the Sarbanes-Oxley Act of 2002, as well as the reporting requirements under the Exchange Act. The Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal controls over financial reporting. Over the years we have identified a number of material weaknesses in our internal controls. As a small company with limited staff it is challenging to maintain effective controls. While the company has spent significant resources in remediating these weaknesses, material weaknesses remain. Control weaknesses raise the risk of future material errors in the company's financial statements. In addition, ongoing weaknesses can subject us to SEC enforcement action, which might include monetary fines or other equitable remedies that could be detrimental to the ongoing business of the company.

We do not intend to pay any cash dividends in the foreseeable future and, therefore, any return on your investment in our common stock must come from increases in the market price of our common stock.

We have not paid any cash dividends on our common stock to date in our history, and we do not intend to pay cash dividends on our common stock in the foreseeable future. We intend to retain future earnings, if any, for reinvestment in the development and expansion of our business. Also, any credit agreements which we may enter into with institutional lenders may restrict our ability to pay dividends. Therefore, any return on your investment in our capital stock must come from increases in the fair market value and trading price of our common stock. Such increases in the trading price of our stock may not occur.

Our certificate of incorporation and bylaws and Delaware law, have provisions that could discourage, delay or prevent a change in control.

Our certificate of incorporation and bylaws and Delaware law contain provisions which could make it more difficult for a third party to acquire us, even if closing such a transaction would be beneficial to our stockholders. We are authorized to issue up to 40,000,000 shares of preferred stock. This preferred stock may be issued in one or more series, the terms of which may be determined at the time of issuance by our Board of Directors without further action by stockholders. The terms of any series of preferred stock may include voting rights (including the right to vote as a series on particular matters), preferences as to dividend, liquidation, conversion and redemption rights and sinking fund provisions. No preferred stock is currently outstanding. The issuance of any preferred stock could materially adversely affect the rights of the holders of our common stock, and therefore, reduce the value of our common stock. In particular, specific rights granted to future holders of preferred stock could be used to restrict our ability to merge with, or sell our assets to, a third party and thereby preserve control by the present management.

Provisions of our certificate of incorporation and bylaws and Delaware law also could have the effect of discouraging potential acquisition proposals or tender offers or delaying or preventing a change in control, including changes a stockholder might consider favorable. Such provisions may also prevent or frustrate attempts by our stockholders to replace or remove our management. In particular, the certificate of incorporation and bylaws and Delaware law, as applicable, among other things:

- provide the Board of Directors with the ability to alter the bylaws without stockholder approval;
- establish staggered terms for board members;
- place limitations on the removal of directors; and
- provide that vacancies on the Board of Directors may be filled by a majority of directors in office, although less than a quorum.

We are also subject to Section 203 of the Delaware General Corporation Law which, subject to certain exceptions, prohibits “business combinations” between a publicly-held Delaware corporation and an “interested stockholder,” which is generally defined as a stockholder who becomes a beneficial owner of 15% or more of a Delaware corporation’s voting stock for a three-year period following the date that such stockholder became an interested stockholder.

A substantial number of shares of common stock may be sold in the market, which may depress the market price for our common stock.

Sales of a substantial number of shares of our common stock in the public market could cause the market price of our common stock to decline. A substantial majority of the outstanding shares of our common stock are freely tradable without restriction or further registration under the Securities Act. In addition, as of December 31, 2017, 120,000,000 shares of our common stock are issuable upon exercise of outstanding warrants and 7,964,000 shares of our common stock are issuable upon exercise of outstanding options.

We may have claims and lawsuits against us that may result in adverse outcomes.

From time to time, we may be subject to a variety of claims and lawsuits. As described more fully in "Item 3. Legal Proceedings," of Part I of this Form 10-K, in the past, we were engaged in responding to a shareholder demand for access to certain corporate books and records, and we were also engaged in several shareholder litigations. We believed that that the claims were without merit, fought them vigorously and settled them. We have also had several small litigations, for example relating to certain payables. However, litigation and claims are subject to inherent uncertainties, and adverse rulings or outcomes could occur, and/or could lead to further claims or litigation. Adverse outcomes or further litigation could result in significant monetary damages or injunctive relief that could adversely affect our business. A material adverse impact on our financial statements also could occur for the period in which an unfavorable final outcome becomes probable and its effect becomes reasonably estimable. In addition, litigation and claims may divert material amounts of management time and attention from our business, and/or involve significant legal costs and expenses.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 2. PROPERTIES

Operating Lease

On July 31, 2012, we entered into a non-cancelable operating lease for 7,097 square feet of office space in Bethesda, Maryland, which expired on March 31, 2018. On March 30, 2018, we entered a renewal agreement to extend the lease until March 31, 2019. The monthly rent expense will be $27,000.

On October 28, 2013, we entered into a non-cancelable operating lease for 4,251 square feet of office space in Germany, which was set to expire in December 2017. On November 15, 2017, we entered a renewal agreement to extend the lease until December 31, 2018.

On March 26, 2016, we entered into a non-cancelable operating lease for 505 square feet of office space in London, which was set to expire on March 20, 2017. On December 19, 2016, we entered a renewal agreement to extend the office lease for additional 1 year until March 20, 2018. No further renewal agreement was entered.

On July 1, 2017, Advent Bioservices entered into a manufacturing service agreement (the "MSA") with a third party. The minimum lease payments under the MSA where Advent Bioservices is the lessee in 2018 and 2019 was approximately $0.7 million and $0.4 million, respectively. Although we are not a party to the MSA, Advent Bioservices is charging us its share of the cost of this lease on a monthly basis and therefore we are including the minimum lease payments in our future minimum lease payments.

As of December 31, 2017, obligations for future minimum lease payments under these leases, in aggregate over the rest of the lease term, total approximately $1.6 million.

U.K. Facility

On August 19, 2014, we completed the acquisition of a facility and property in Sawston, U.K ("UK Facility"). The purchase price was £13 million ($20.8 million at the then current exchange rate, excluding professional fees of $1.5 million associated with the purchase of the U.K Facility). On December 9, 2014, we completed the acquisition of additional property adjacent to and surrounded by the initial property. The purchase price was £5 million. The overall property includes several existing buildings, including an existing building of approximately 65,000 square feet which we are re-purposing and developing for manufacturing of DCVax products for the European market. Such re-purposing requires approval of the applicable Planning Commission. If re-purposing is approved, then the specific design and engineering of the proposed build out will also have to be approved. In addition to the facility, the acquisitions included about 25 acres of potentially developable land (as well as non-developable land). Any future development for business use will require removal of certain existing structures, permission from the Planning Commission for the intended purpose, and then permission from the Planning Commission for the specific designs and engineering. In addition, future use for manufacturing of DCVax products will require regulatory approval from the MHRA (the U.K. regulatory authority).

On October 10, 2017, the Company entered into an agreement to lease to Commodities Centre, a commodity storage and distribution firm domiciled in the U.K., an existing approximately 275,000 square foot warehouse building on the Company's property in Sawston, U.K. The term of the lease will be five years, with the potential for the tenant to discontinue at three years and five months. The tenant will undertake at least $1.1 million of repairs and improvements to the building in return for five and a half months of free rent (which began upon execution of the lease and ends on March 24, 2018). Thereafter, the tenant will pay rent at an annualized rate of approximately $1.0 million for the first year, and thereafter rent at an annualized rate of approximately $1.4 million for each year or partial year for the rest of the lease term, plus VAT. The tenant will also pay a proportional share of the common costs and the insurance costs for the overall site. The tenant will pay for its own utilities and other costs for use of the warehouse.

ITEM 3. LEGAL PROCEEDINGS

Derivative and Class Action Litigation

On June 19, 2015, two purported shareholders filed a lawsuit in the Delaware Court of Chancery, captioned *Tharp, et al. v. Cognate, et al.*, C.A. 11179-VCG (Del. Ch. filed June 19, 2015), purportedly suing on behalf of a class of similarly situated shareholders and derivatively on behalf of the Company. The lawsuit named Cognate BioServices, Inc., Toucan Partners, Toucan Capital Fund III, our CEO Linda Powers and the individuals who then served on the Company's Board of Directors as defendants, and named the Company as a "nominal defendant" with respect to the derivative claims. The complaint generally challenged certain transactions between the Company and Cognate and the Toucan entities, in which Cognate and the Toucan entities provided services and financing to the Company, or agreed to the conversion of debts owed to them by the Company into equity. The complaint sought unspecified monetary relief for the Company and the plaintiffs, and various forms of equitable relief, including disgorgement of allegedly improper benefits, rescission of the challenged transactions, and an order forbidding similar transactions in the future. After considerable litigation and negotiations, the parties reached an agreement to settle the case, along with the *Yonemura* case, discussed below. On October 17, 2017, the court entered a final order and judgment approving the settlement.

On November 19, 2015, a third purported shareholder filed a lawsuit in the U.S. District Court for the District of Maryland, captioned *Yonemura v. Powers, et al.*, No. 15-03526 (D. Md. filed Nov. 19, 2015), claiming to sue derivatively on behalf of the Company. The complaint named the individuals who then served on the Company's Board of Directors, Toucan Capital Fund III, L.P., Toucan General II, LLC, Toucan Partners, LLC, and Cognate as defendants, and named the Company as a nominal defendant. The complaint generally challenged the same transactions disputed in the Delaware case, claiming that the Company purportedly overcompensated Cognate and Toucan for certain services and loans in payments of stock, and that the Company's CEO, Ms. Powers, benefited from these transactions with Cognate and Toucan, which she allegedly owns or controls. The complaint asserted that the alleged overpayments unjustly enriched Ms. Powers, Toucan, and Cognate; that the Company's directors breached their fiduciary duties of loyalty and good faith to the Company by authorizing the payments to Cognate; and that Ms. Powers, Cognate, and Toucan aided and abetted the directors' breaches of fiduciary duties. The plaintiff sought an award of unspecified damages to the Company and equitable remedies, including disgorgement by Ms. Powers, Toucan, and Cognate of the allegedly improper benefits received as a result of the disputed transactions. The plaintiff also sought costs and disbursements associated with bringing suit, including attorneys' fees and expert fees. As discussed above, the parties agreed to settle the *Yonemura* case along with the *Tharp* case. On November 22, 2017, the parties submitted a joint stipulation of voluntary dismissal, and on November 27, 2017, the court entered an order dismissing the case.

On November 28, 2016, a purported shareholder filed a lawsuit in the Circuit Court for Montgomery County, Maryland, captioned *Wells v. Powers, et al.*, Case No. 427353-V (Md. Cir. Ct., Mont. Cty. filed Nov. 28, 2016), claiming to sue derivatively on behalf of the Company. The complaint named six current and former members of the Company's Board of Directors, Toucan Partners, LLC, Toucan Capital Fund III, L.P., Toucan Partners, LP (a non-existent entity), Toucan General II, LLC, and Cognate as defendants, and named the Company as a nominal defendant. The complaint largely challenged the same transactions disputed in the two cases discussed above, claiming that the Company overcompensated Cognate and Toucan for certain services and loans. It asserted that, by authorizing those transactions, the individual defendants breached their fiduciary duties to the Company, abused their ability to control and influence the Company, and engaged in gross mismanagement of the Company's business and assets. In addition, the complaint claimed that the individual defendants are liable to the Company for misleading its investors and financiers. The complaint claimed that the individual defendants were unjustly enriched by receiving compensation while the Company's stock price was allegedly artificially inflated; that Ms. Powers, Toucan, and Cognate are "controlling" stockholders of the Company who breached their fiduciary duties to minority stockholders; that Ms. Powers, Toucan, and Cognate, benefited from these transactions due to their alleged "control"; that the alleged overpayments unjustly enriched Ms. Powers, Toucan, and Cognate; and that Toucan and Cognate aided and abetted the individual defendants in breaching their fiduciary duties. The plaintiff sought the award of unspecified damages to the Company; an order from the court directing the Company to reform its corporate governance and internal procedures; and equitable remedies, including restitution and disgorgement from defendants. The plaintiff also sought the costs and disbursements associated with bringing suit, including attorneys' fees, costs, and expenses. After considerable litigation and negotiations, the parties reached an agreement to settle the case. On January 3, 2018, the court entered a final order and judgment approving the settlement.

Therefore, all the foregoing litigation is now concluded.

U.S. Securities and Exchange Commission

As previously reported, the Company has received a number formal information requests (subpoenas) from the SEC regarding several broad topics that have been previously disclosed, including the Company's membership on Nasdaq and delisting, related party matters, the Company's programs, internal controls, the Company's Special Litigation Committee, disclosures and the planned publication of interim clinical trial data. Testimony of certain officers and third parties has been taken as well. The Company is cooperating with the SEC investigation and is hopeful that it is reaching its final stages.

Chardan Capital Markets v. Northwest Biotherapeutics, Inc.

On June 22, 2017, Chardan Capital Markets, LLC filed a lawsuit against the Company in the United District Court for the Southern District of New York, captioned *Chardan Capital Markets v. Northwest Biotherapeutics, Inc.*, 1:17-cv-04727-PKC. Chardan alleges that it provided capital placement agent services to the Company in December 2016 under a contract and that it has not been fully compensated for those services. Chardan further alleges that it provided additional services to the Company in March 2017 in anticipation of entering into a contract and that it received no compensation. The operative complaint asserts claims sounding in unjust enrichment, quantum meruit, and breach of contract, and seeks recovery in the amount of $496,000, plus interest and attorneys' fees and costs. The Company filed a motion to dismiss the complaint on December 1, 2017; Chardan filed its opposition brief on January 19, 2018; and the Company filed its reply brief on February 26, 2018. The Company's motion to dismiss remains pending.

ITEM 4. MINE SAFETY DISCLOSURES

Not Applicable.

PART II

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

Market for Common Equity and Related Stockholder Matters

Our common stock and certain warrants trade on OTCQB under the trading symbols "NWBO" and "NWBOW" effective December 19, 2016. The table below sets forth the high and low prices for our common stock for the last two fiscal years. Quotations reflect inter-dealer prices, without retail mark-up, mark-down commission, and may not represent actual transactions. No assurance can be given that an active market will exist for our common stock.

	High	Low
Year-end December 31, 2017		
First Quarter	$ 0.30	$ 0.16
Second Quarter	0.29	0.16
Third Quarter	0.24	0.14
Fourth Quarter	0.48	0.23
Year-end December 31, 2016		
First Quarter	$ 3.06	$ 1.31
Second Quarter	1.72	0.56
Third Quarter	0.70	0.32
Fourth Quarter	0.83	0.35

As of March 28, 2018, there were approximately 145 holders of record of our common stock. Such holders may include any broker or clearing agencies as holders of record, and in such cases exclude the individual stockholders whose shares are held by such brokers or clearing agencies.

Dividend Policy

We have never declared or paid cash dividends on our capital stock. We currently intend to retain all future earnings, if any, to fund the ongoing development and growth of our business. We do not currently anticipate paying any cash dividends in the foreseeable future.

Stock Performance Graph

Not Applicable

Recent Sales of Unregistered Securities

All of the securities set forth above were issued by the Company pursuant to Section 4(a)(2) of the Securities Act of 1933, as amended, or the provisions of Rule 506 of Regulation D promulgated under the Securities Act. All such shares issued contained a restrictive legend and the holders confirmed that they were acquiring the shares for investment and without intent to distribute the shares. All of the purchasers were friends or business associates of the Company's management and all were experienced in making speculative investments, understood the risks associated with investments, and could afford a loss of the entire investment. The Company did not utilize an underwriter or a placement agent for any of these offerings of its securities.

ITEM 6. SELECTED CONSOLIDATED FINANCIAL DATA

Not Applicable

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

You should read this discussion together with the Financial Statements, related Notes and other financial information included elsewhere in this Form 10-K. The following discussion contains assumptions, estimates and other forward-looking statements that involve a number of risks and uncertainties, including those discussed under "Risk Factors," and elsewhere in this Form 10-K. These risks could cause our actual results to differ materially from those anticipated in these forward-looking statements

Overview

The Company is focused on developing personalized immune therapies for cancer. We have developed a platform technology, DCVax, which uses activated dendritic cells to mobilize a patient's own immune system to attack their cancer.

The Company's lead product, DCVax®-L, is designed to treat solid tumor cancers in which the tumor can be surgically removed. This product is in an ongoing Phase III trial for newly diagnosed Glioblastome multiforme (GBM). 331 patients have been enrolled in the trial, and enrollment is closed. The Company is also working on preparations for Phase II trials of DCVax-L for other indications.

The Company's second product, DCVax®-Direct, is designed to treat inoperable solid tumors. A 40-patient Phase I trial has been completed, and included treatment of a diverse range of cancers. The Company is working on preparations for Phase II trials of DCVax-Direct.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations are based on our financial statements, which have been prepared in accordance with U.S. GAAP. The preparation of these financial statements requires us to make estimates and judgments that affect our reported amounts of assets, liabilities, revenues and expenses.

On an ongoing basis, we evaluate our estimates and judgments, including those related to accrued expenses and stock-based compensation. We based our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities and the reported amounts of revenues and expenses that are not readily apparent from other sources. Actual results may differ from these estimates.

Warrant Liability

The Company accounts for certain common stock warrants outstanding as a liability at fair value and adjusts the instruments to fair value at each reporting period. This liability is subject to re-measurement at each balance sheet date until exercised, and any change in fair value is recognized in the Company's consolidated statements of operations. The fair value of the warrants issued by the Company has been estimated using Monte Carlo simulation and or a Black Scholes model.

Fair Value Measurements

Fair value is defined as the price that would be received for sale of an asset or paid for transfer of a liability, in an orderly transaction between market participants at the measurement date. U.S. GAAP establishes a three-tier fair value hierarchy which prioritizes the inputs used in measuring fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). These tiers include:

- Level 1 - defined as observable inputs such as quoted prices for identical instruments in active markets;
- Level 2 - quoted prices for similar assets and liabilities in active markets or inputs that are observable
- Level 3 - inputs that are unobservable (for example, cash flow modeling inputs based on assumptions)

Impairment of Long-Lived Assets

The Company assesses its long-lived assets for impairment whenever facts and circumstances indicate that the carrying amounts may not be fully recoverable. To analyze recoverability, the Company projects undiscounted net future cash flows over the remaining lives of such assets. If these projected cash flows are less than the carrying amounts, an impairment loss would be recognized, resulting in a write-down of the assets with a corresponding charge to earnings. The impairment loss is measured based upon the difference between the carrying amounts and the fair values of the assets. Assets to be disposed of are reported at the lower of the carrying amounts or fair value less cost to sell. Management determines fair value using the discounted cash flow method or other accepted valuation techniques.

As of December 31, 2017 and 2016, the undiscounted net future cash flows of the UK property were greater than the carrying value. Therefore, no impairment loss was considered necessary.

Environmental Remediation Liabilities

We record environmental remediation liabilities for properties acquired. The environmental remediation liabilities are initially recorded at fair value. The liability is reduced for actual costs incurred in connection with the clean-up activities for each property. Upon completion of the clean-up, the environmental remediation liability is adjusted to equal the fair value of the remaining operation, maintenance and monitoring activities to be performed for the property. The reduction in the liability resulting from the completion of the clean-up is included in other income. As of December 31, 2017, we estimate that the total environmental remediation costs associated with the purchase of the UK Facility will be approximately $6.2 million. Contamination clean-up costs that improve the property from its original acquisition state are capitalized as part of the property's overall development costs. We engaged a third party specialist to conduct certain surveys of the condition of the property which included, among other things, a preliminary analysis of potential environmental remediation exposures. We determined, based on information contained in the specialist's report, that we would be required to estimate the fair value of an unconditional obligation to remediate specific ground contamination at an estimated fair value of approximately $6.2 million. We computed its preliminary estimate of the fair value of this obligation using a probability weighted approach that measures the likelihood of the following two potential outcomes: (i) a higher probability requirement of erecting a protective barrier around the affected area at an estimated cost of approximately $4.6 million, and (ii) a lower probability requirement of having to excavate the affected area at an estimated cost of approximately $33.4 million. Our estimate is preliminary and therefore subject to change as further studies are conducted, and as additional facts come to our attention. Environmental remediation efforts are complex, technical and subject to various uncertainties. Accordingly, it is at least reasonably possible that any changes in our estimate could materially differ from the management's preliminary discussed herein.

Stock-based Compensation

The Company expenses stock-based compensation to employees and Board members over the requisite service period based on the estimated grant-date fair value of the awards. Stock-based awards with graded-vesting schedules are recognized on a straight-line basis over the requisite service period for each separately vesting portion of the award. For stock-based compensation awards to non-employees, the Company remeasures the fair value of the non-employee awards at each reporting period prior to vesting and finally at the vesting date of the award. Changes in the estimated fair value of these non-employee awards are recognized as compensation expense in the period of change.

The Company estimates the fair value of stock option grants using the Black-Scholes option pricing model and the assumptions used in calculating the fair value of stock-based awards represent management's best estimates and involve inherent uncertainties and the application of management's judgment.

Expected Term — The expected term of options represents the period that the Company's stock-based awards are expected to be outstanding based on the simplified method, which is the half-life from vesting to the end of its contractual term.

Expected Volatility — The Company computes stock price volatility over expected terms based on its historical common stock trading prices.

Risk-Free Interest Rate — The Company bases the risk-free interest rate on the implied yield available on U. S. Treasury zero-coupon issues with an equivalent remaining term.

Expected Dividend — The Company has never declared or paid any cash dividends on its common shares and does not plan to pay cash dividends in the foreseeable future, and, therefore, uses an expected dividend yield of zero in its valuation models.

The fair value of restricted stock units is determined based on the number of shares granted and the quoted market price of the Company's common stock on the date of grant. The fair value of restricted stock units with performance conditions deemed probable of being achieved and vesting are amortized to expense over the requisite service period using the straight-line method of expense recognition.

Effective on January 1, 2017, the Company elected to account for forfeited awards as they occur as permitted by Accounting Standards Update ("ASU") 2016-09. Ultimately, the actual expenses recognized over the vesting period will be for those shares that vested. Prior to making this election, the Company estimated a forfeiture rate for awards at 0%, as the Company did not have a significant history of forfeitures.

Adoption of Recent Accounting Pronouncements

Compensation-Stock Compensation

In March 2016, the Financial Accounting Standards Board (the "FASB") issued ASU No. 2016-09, *Compensation-Stock Compensation (Topic 718), Improvements to Employee Share-Based Payment Accounting*. Under ASU No. 2016-09, companies will no longer record excess tax benefits and certain tax deficiencies in additional paid-in capital ("APIC"). Instead, they will record all excess tax benefits and tax deficiencies as income tax expense or benefit in the income statement and the APIC pools will be eliminated. In addition, ASU No. 2016-09 eliminates the requirement that excess tax benefits be realized before companies can recognize them. ASU No. 2016-09 also requires companies to present excess tax benefits as an operating activity on the statement of cash flows rather than as a financing activity. Furthermore, ASU No. 2016-09 will increase the amount an employer can withhold to cover income taxes on awards and still qualify for the exception to liability classification for shares used to satisfy the employer's statutory income tax withholding obligation. An employer with a statutory income tax withholding obligation will now be allowed to withhold shares with a fair value up to the amount of taxes owed using the maximum statutory tax rate in the employee's applicable jurisdiction(s). ASU No. 2016-09 requires a company to classify the cash paid to a tax authority when shares are withheld to satisfy its statutory income tax withholding obligation as a financing activity on the statement of cash flows. Under current U.S. GAAP, it was not specified how these cash flows should be classified. In addition, companies will now have to elect whether to account for forfeitures on share-based payments by (1) recognizing forfeitures of awards as they occur or (2) estimating the number of awards expected to be forfeited and adjusting the estimate when it is likely to change, as is currently required. These aspects of ASU 2016-09 are effective for reporting periods beginning after December 15, 2016, with early adoption permitted provided that all of the guidance is adopted in the same period. The Company's adoption of ASU No. 2016-09 on January 1, 2017 did not have a material impact on its consolidated financial statements and related disclosures. In accordance with the adoption of ASU No. 2016-09, the Company will record forfeitures, if any, when such forfeitures occur.

Recognition and Measurement of Financial Assets and Financial Liabilities

In January 2016, FASB issued ASU No. 2016-01, Recognition and Measurement of Financial Assets and Financial Liabilities. ASU 2016-01 requires equity investments to be measured at fair value with changes in fair value recognized in net income; simplifies the impairment assessment of equity investments without readily determinable fair values by requiring a qualitative assessment to identify impairment; eliminates the requirement for public business entities to disclose the method(s) and significant assumptions used to estimate the fair value that is required to be disclosed for financial instruments measured at amortized cost on the balance sheet; requires public business entities to use the exit price notion when measuring the fair value of financial instruments for disclosure purposes; requires an entity to present separately in other comprehensive income the portion of the total change in the fair value of a liability resulting from a change in the instrument-specific credit risk when the entity has elected to measure the liability at fair value in accordance with the fair value option for financial instruments; requires separate presentation of financial assets and financial liabilities by measurement category and form of financial assets on the balance sheet or the accompanying notes to the financial statements; and clarifies that an entity should evaluate the need for a valuation allowance on a deferred tax asset related to available-for-sale securities in combination with the entity's other deferred tax assets. ASU 2016-01 will be effective for financial statements issued for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years. The Company has adopted this guidance during the quarter ended March 31, 2018. The adoption of this guidance did not have a significant impact on the operating results when adopted.

Statement of Cash Flows

In August 2016, the FASB issued ASU No. 2016-15 Statement of Cash Flows - Classification of Certain Cash Receipts and Cash Payments, which addresses specific cash flow classification issues where there is currently diversity in practice including debt prepayment and proceeds from the settlement of insurance claims. ASU 2016-15 is effective for annual periods beginning after December 15, 2017, with early adoption permitted. The Company adopted ASU No. 2016-15 as of January 1, 2018. The adoption of this update did not impact the Company's consolidated financial statements and related disclosures.

Recent Accounting Pronouncements to Be Adopted

Revenue from Contracts with Customer

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers (Topic 606)" (ASU 2014-09) as modified by ASU No. 2015-14, "Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date," ASU 2016-08, "Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net)," ASU No. 2016-10, "Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing," and ASU No. 2016-12, "Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients." The revenue recognition principle in ASU 2014-09 is that an entity should recognize revenue to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In addition, new and enhanced disclosures will be required. Companies may adopt the new standard either using the full retrospective approach, a modified retrospective approach with practical expedients, or a cumulative effect upon adoption approach. The Company will continue to book revenue under its current method. The Company plans to apply ASC 606 revenue recognition once revenue from contracts with customers is material.

Leases

In February 2016, FASB issued ASU No. 2016-02, *Leases (Topic 842)* which supersedes FASB ASC Topic 840, *Leases (Topic 840)* and provides principles for the recognition, measurement, presentation and disclosure of leases for both lessees and lessors. The new standard requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. This classification will determine whether lease expense is recognized based on an effective interest method or on a straight-line basis over the term of the lease, respectively. A lessee is also required to record a right-of-use asset and a lease liability for all leases with a term of greater than twelve months regardless of classification. Leases with a term of twelve months or less will be accounted for similar to existing guidance for operating leases. The standard will be effective for annual and interim periods beginning after December 15, 2018, with early adoption permitted upon issuance. The Company is currently evaluating the impact that ASU 2016-02 will have on its consolidated financial statements and related disclosures.

Compensation-Stock Compensation

In May 2017, the FASB issued ASU No. 2017-09, *Compensation-Stock Compensation (Topic 718): Scope of Modification Accounting*, which clarifies when to account for a change to the terms or conditions of a share-based payment award as a modification. Under the new guidance, modification accounting is required only if the fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions. It is effective prospectively for the annual period ending December 31, 2018 and interim periods within that annual period. Early adoption is permitted. The Company is currently evaluating the impact of adopting this standard on the consolidated financial statements and disclosures, but does not expect it to have a significant impact.

Accounting for Certain Financial Instruments with Down Round Features

On July 13, 2017, the FASB has issued a two-part ASU No. 2017-11, (i). *Accounting for Certain Financial Instruments with Down Round Features* and (ii) *Replacement of the Indefinite Deferral for Mandatorily Redeemable Financial Instruments of Certain Nonpublic Entities and Certain Mandatorily Redeemable Noncontrolling Interests with a Scope Exception* which simplifies the accounting for certain financial instruments with down round features, a provision in an equity-linked financial instrument (or embedded feature) that provides a downward adjustment of the current exercise price based on the price of future equity offerings. It is effective for public business entities for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. Early adoption is permitted. The Company will be evaluating the impact of adopting this standard on the consolidated financial statements and disclosures.

Income Taxes

In February 2018, the FASB issued ASU No. 2018-02, Income Statement - Reporting Comprehensive Income, (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income, which allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the newly enacted federal corporate income tax rate under the Tax Cuts and Jobs Act. The amount of the reclassification would be the difference between the historical corporate income tax rate and the newly enacted 21% corporate income tax rate. The new standard is effective for fiscal years, including interim periods within those fiscal years, beginning after December 15, 2018 with early adoption in any interim period permitted. The Company is currently evaluating the effect that the updated standard will have on its consolidated financial statements and related disclosures.

Results of Operations

Operating costs:

Operating costs and expenses consist primarily of research and development expenses, including clinical trial expenses which increase when we are actively participating in clinical trials and especially when we are in a large ongoing international phase III trial. The associated administrative expenses also increase as such operating activities grow.

In addition to clinical trial related costs, our operating costs may include ongoing work relating to our DCVax products, including R&D, product characterization, and related matters. Going forward, we will also have to undertake process validation work.

Our operating costs also include the costs of preparations for the launch of new or expanded clinical trial programs, such as our planned Phase II clinical trials. The preparation costs include payments to regulatory consultants, lawyers, statisticians, sites and others, evaluation of potential investigators, the clinical trial sites and the CROs managing the trials and other service providers, and expenses related to institutional approvals, clinical trial agreements (business contracts with sites), training of medical and other site personnel, trial supplies and other. Additional substantial costs relate to the maintenance of manufacturing capacity, in both the US and Europe.

Our operating costs also include significant legal and accounting costs in operating the Company.

Research and development:

Discovery and preclinical research and development expenses include costs for substantial external scientific personnel, technical and regulatory advisers, and others, costs of laboratory supplies used in our internal research and development projects, travel, regulatory compliance, and expenditures for preclinical and clinical trial operation and management when we are actively engaged in clinical trials.

Because we are pre-revenue company, we do not allocate research and development costs on a project basis. We adopted this policy, in part, due to the unreasonable cost burden associated with accounting at such a level of detail and our limited number of financial and personnel resources.

General and administrative:

General and administrative expenses include administrative personnel related salary and benefit expenses, cost of facilities, insurance, travel, legal support, property and equipment and amortization of stock options and warrants.

For the Years Ended December 31, 2017 and 2016

We recognized a net loss of $73.1 million and $80.2 million for the years ended December 31, 2017 and 2016, respectively. Net cash used in operations were $36.5 million and $55.7 million for the years ended December 31, 2017 and 2016, respectively.

Research and development expense

Research and development expense was $33.5 million and $60.1 million for the years ended December 31, 2017 and 2016, respectively. Included in research and development expense was $29.0 million and $56.4 million, respectively, related to clinical trial expenses such as CRO fees and site fees.

For the years ended December 31, 2017 and 2016, we made cash payments of approximately $8.4 million and $14.2 million, respectively, to Cognate BioServices. At December 31, 2017 and 2016, we owed Cognate BioServices $5.2 million and $23.4 million, respectively, for unpaid invoices.

During the year ended December 31, 2016, we incurred equity-based compensation (restricted common stock and warrants) related to Cognate BioServices which would be valued at $13.7 million, if the equity value were determined at the market price for unrestricted tradable shares. However, the shares issued to Cognate were unregistered, non-tradable shares subject to multiple restrictions, including affiliate restrictions, 3-year vesting and a 3-year lock-up covering shares that vested. The actual value was reduced accordingly. This equity compensation primarily involved one-time initiation payments of shares and warrants relating to the four new agreements we entered into with Cognate in January, 2014. The equity compensation also included lock-up warrants (for the lock-up of Cognate shares) and originally included most favored nation shares and warrants but those most favored nation shares and warrants were returned and cancelled (and other most favored nation shares and warrants were cancelled and never issued) during 2016 as part of a remediation agreement with Nasdaq.

We incurred research and development costs related to Cognate BioServices of $24.6 million, and $48.3 million for the years ended December 31, 2017 and 2016, respectively, in connection with our clinical programs, R&D and facilities development.

General and administrative expense and legal expenses

General and administrative expense and legal expense was $21.5 million and $19.8 million for the years ended December 31, 2017, and 2016, respectively. The increase in 2017 was primarily due to accounting fees related to regulatory investigations, litigation cases and consulting fees for financing activities. We incurred legal expenses of $9.0 million and $8.9 million for the years ended December 31, 2017 and 2016, respectively.

Change in fair value of derivatives

During the years ended December 31, 2017 and 2016, we recognized $2.6 million loss and $17.9 million gain on derivative liabilities, respectively.

The non-cash loss in 2017 consisted of approximately $1.0 million gain related to warrant liabilities which was primarily due to the decrease of stock price as of December 31, 2017 comparing with December 31, 2016. In addition, the non-cash loss in 2017 included $3.6 million loss from change in fair value of embedded conversion feature, which related to debt conversion and extinguishment during the year ended December 31, 2017.

The non-cash gain in 2016 was primarily due to the change in fair value of warrants issued to Cognate BioServices for research and development, and warrants issued in connection with our Cognate BioServices service agreements entered in July 2013 and January 2014.

Inducement loss

During the years ended December 31, 2017 and 2016, we recognized an inducement loss of $2.3 million and $1.5 million, respectively.

The inducement expenses for the year ended December 31, 2017 was due to modification on warrants issued to certain unrelated third parties.

The inducement expense for the year ended December 31, 2016 was related to the extinguishment and modification on warrant liabilities issued to certain third parties.

Interest expense

During the years ended December 31, 2017 and 2016, we recorded interest expense of $5.6 million and $3.8 million, respectively. Interest expense increased in 2017 as compared to 2016 was primarily due to the increase in outstanding debt balances.

Liquidity and Capital Resources

We have experienced recurring losses from operations since inception. During the year ended December 31, 2017, net cash outflows from operations were $36.5 million for all of the Company's ongoing programs (including the 331-patient Phase III trial of DCVax-L in the US, Europe and Canada, the Phase I/II DCVax-Direct clinical program, and early access programs) as well as preparations for new clinical programs and for manufacturing capacity in Europe.

Our consolidated financial statements indicate there is substantial doubt about our ability to continue as a going concern as we are dependent on our ability to obtain short term financing and ultimately to generate sufficient cash flow to meet our obligations on a timely basis, as well as successfully obtain financing on favorable terms to fund our long-term plans. We can give no assurance that our plans and efforts to achieve the above steps will be successful.

At December 31, 2017, current assets totaled $1.4 million, compared to $7.9 million at December 31, 2016. Current assets less current liabilities produced a working capital deficit in the amount of $86.3 million and $68.5 million at December 31, 2017 and 2016, respectively. The increase of our working capital deficit in 2017 was primarily due to an increase in warrant liabilities and offset by a decrease in accounts payable to Cognate BioServices and a decrease in our cash balance. Derivative adjustments, primarily attributable to warrants, accounted for $40.2 million of the $86.3 million deficit at December 31, 2017 and $4.9 million of the $68.5 million deficit at December 31, 2016.

We engaged a third-party specialist to conduct certain surveys of the condition of the property in the U.K. ("UK Facility") which included, among other things, a preliminary analysis of potential environmental remediation exposures. We determined, based on information contained in the specialists' report, that we would be required to estimate the fair value of an unconditional obligation to remediate specific ground contamination at an estimated fair value of approximately $6.2 million. We computed our preliminary estimate of the fair value of this obligation using a probability approach that measures likelihood of the following two potential outcomes: (i) a higher probability (>95%) requirement of erecting a protective barrier around the affected area at an estimated cost of approximately $4.6 million, or (ii) lower probability (<5%) requirement of having to excavate the affected area at an estimated cost of approximately $33.4 million. Our estimate is preliminary and therefore subject to change as further studies are conducted, and as additional facts come to our attention. Environmental remediation obligations are complex and technical. Accordingly, it is at least reasonably possible that any changes in our estimates could materially differ from management's preliminary estimates.

Contingent Contractual Payment

The following table summarizes our contractual obligations as of December 31, 2017 (amount in thousands):

	Payment Due by Period		
	Total	**Less than 1 Year**	**1 to 2 Years**
Short term notes payable (1)			
8% unsecured	6,077	6,077	-
10% unsecured	724	724	
12% unsecured	467	467	-
Short term notes payable - related parties (2)			
10% unsecured - (on demand)	1,191	1,191	-
12% unsecured - (on demand)	52	52	-
Long term convertible notes payable (3)			
12% secured convertible notes and interest	6,955	-	6,955
Long term notes payable (3)			
8% unsecured	3,226	-	3,226
Share-settled debt, at fair value (4)	4,371	4,371	-
Mortgage loan and interest (5)	12,543	12,543	-
Operating leases (6)	1,614	1,111	503
Purchase obligations (7)			
Total	**$ 37,220**	**$ 26,536**	**$ 10,684**

(1) The obligations related to short term notes were approximately $7.3 million as of December 31, 2017, which included remaining contractual unpaid interest of $0.3 million.

(2)) The obligations related to short term notes to related parties were approximately $1.2 million as of December 31, 2017, which included unpaid interest of $0.1 million. The obligations included loans of $50,000 from Cofer Black, a Company Director; $125,000 from Jerry Jasinowski, a Company Director; $125,000 from Robert Farmer, a Company Director; $414,000 remaining balance owed to Leslie Goldman, an officer of the Company, and $407,000 remaining balance owed to Toucan Capital Fund III from its loans in April 2017 and June 2017.

(3) The obligations related to long term convertible notes were approximately $7.0 million as of December 31, 2017, which included unpaid interest of $1.6 million. The convertible notes will be due in June 2020.

(4) The obligations related to share settled debt were approximately $4.4 million as of December 31, 2017, which included $1.1 million accrued interest.

(5) The obligations related to the mortgage loan were approximately $12.5 million as of December 31, 2017, which included $1.2 million renewal fee and exit fee which will be due at end of the loan term, and $0.9 million of remaining interest payments.

(6) The operating lease obligations during the next 2 years included $406,000, $21,000 and $42,000 to our office in Maryland, Germany and London, respectively. We also assumed Cognate Bioservices, GmbH's lease agreement, and we agreed to pay $479,000 (400,000 Euros) settlement fee to the Cognate Bioservices, GmbH's lessor in 2018. We also included approximately $0.7 million and $0.4 million of minimum lease payments in 2018 and 2019, respectively. Advent BioServices is the lessee. Although we are not a party to this lease, Advent is charging us its share of the cost of this lease on a monthly basis and therefore we are including the minimum lease payments in this table.

(7) We have possible contingent obligations to pay certain fees to Cognate BioServices (in addition to any other remedies) if we shut down or suspend its DCVax-L program or DCVax-Direct program. These obligations are not reflected in the accompanying balance sheets. For a shut down or suspension of the DCVax-L program, the fees will be as follows:

- Prior to the last dose of the last patient enrolled in the Phase III trial for DCVax®-L or After the last dose of the last patient enrolled in the Phase III clinical trial for DCVax®-L but before any submission for product approval in any jurisdiction or after the submission of any application for market authorization but prior to receiving a marketing authorization approval: in any of these cases, the fee shall be $3 million.

- At any time after receiving the equivalent of a marketing authorization for DCVax®-L in any jurisdiction, the fee shall be $5 million.

For a shut down or suspension of the DCVax-Direct program, the fees will be as follows:

- Prior to the last dose of the last patient enrolled in the Phase I trial for DCVax®-Direct, the fee shall be $1.5 million.

- After the last dose of the last patient enrolled in the Phase I clinical trial for DCVax®-Direct but before the initiation of a Phase III trial the fee shall be $2.0 million.

- After initiation of a phase III trial but before submission of an application for market authorization in any jurisdiction or after the submission of an application for market authorization but prior to receiving a market authorization approval: in each of these cases, the fee shall be $3.0 million.

- At any time after receiving the equivalent of a marketing authorization for DCVax®-Direct in any jurisdiction the fee shall be $5.0 million.

As of December 31, 2017, no shut-down or suspension fees were triggered.

While our DCVax programs are ongoing, we are required to pay certain fees for dedicated production suites or capacity reserved exclusively for DCVax production, and pay for a certain minimum number of patients, whether or not we fully utilize the dedicated capacity and number of patients. We are in the process of negotiating with Cognate for a reduction of such fees during 2018.

Operating Activities

We used $36.5 million and $55.6 million in cash for operating activities during the years ended December 31, 2017 and 2016, respectively. The decrease in cash used in operating activities was primarily attributable to the decrease in the levels of activity in our ongoing clinical programs, as well as limited funding availability.

As of December 31, 2017, our Phase III clinical trial was ongoing in the US, Europe and Canada. 331 patients had been enrolled in the trial, and enrollment was closed.

Investing

During the year ended December 31, 2017, we received a $0.2 million VAT refund from certain vendors relating to the UK construction.

During the year end December 31, 2016, we used approximately $4.9 million to capitalize costs related to the UK facility.

Financing Activities

We received approximately $12.2 million in cash proceeds from issuance of convertible preferred stock and warrants during the year ended December 31, 2017.

We received approximately $8.7 million and $18.9 million in cash proceeds from issuance of common stock and warrants in the registered direct offering during the years ended December 31, 2017 and 2016, respectively.

We received approximately $2.1 million and $6.4 million in cash proceeds from the issuance of common stock and warrants in private offerings during the years ended December 31, 2017 and 2016, respectively.

We received approximately $2.6 million and $7.3 million cash proceeds from exercise of warrants during the years ended December 31, 2017 and 2016, respectively.

We received approximately $14.0 million, including $2.8 million to related parties and $5.7 million in cash proceeds from issuance of multiple debts during the years ended December 31, 2017 and 2016, respectively.

We made aggregate debt payments of $5.3 million, including a $2.0 million payment to related parties during the year ended December 31, 2017.

We are dependent upon continued financing activities in order to continue as a going concern.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

None

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The full text of our audited consolidated financial statements as of December 31, 2017 and 2016 and for the fiscal years ended December 31, 2017 and 2016, begins on page F-1 of this Annual Report on Form 10-K.

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

None.

ITEM 9A. CONTROLS AND PROCEDURES

Conclusion Regarding the Effectiveness of Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our principal executive, financial and accounting officer, we conducted an evaluation of our disclosure controls and procedures, as such term is defined under Rule 13a-15(e) promulgated under the Securities Exchange Act of 1934, as amended. Based on this evaluation, our principal executive, financial and accounting officer concluded that, as of December 31, 2017, in light of the material weaknesses described below, our disclosure controls and procedures were improving but were not effective to ensure that the information required to be disclosed by us in the reports that we file or submit under the Securities Exchange Act of 1934 is accumulated and communicated to management, including our chief executive officer, financial and accounting officer, to allow timely decisions regarding required disclosure, and that such information is recorded, processed, summarized and reported within the time periods prescribed by the SEC.

Management's Report on Internal Controls Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal controls over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Under the supervision and with the participation of our management, including our principal executive, financial and accounting officer, we conducted an evaluation of the effectiveness of our internal controls over financial reporting as of December 31, 2017. This evaluation was based on the framework in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO").

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the Company's annual or interim financial statements will not be prevented or detected on a timely basis.

Based on management's evaluation as of December 31, 2017, our management identified the following material weaknesses set forth below in our internal control over financial reporting:

- Lack of controls in place, including those surrounding related party transactions, to ensure that all material transactions and developments impacting the financial statements are reflected and properly recorded.
- Design deficiencies that do not meet stated control objectives that elevate the level of risk of a material misstatement to our financial statements.
- Policies and procedures with respect to the review, supervision and monitoring of our accounting operations throughout the organization were either not designed and in place or not operating effectively.

These material weaknesses are primarily due to the company size and limited personnel. Our company's management concluded that in light of the material weaknesses described above, our company did not maintain effective internal control over financial reporting as of December 31, 2017 based on the criteria set forth in Internal Control-Integrated Framework (2013) issued by the COSO.

Management plans to continue undertaking improvements in due course; however, the specific nature and timing of such steps is uncertain.

Changes in Internal Control over Financial Reporting

Certain accounting and financial reporting functions are performed by an external firm on a contract services basis. This firm specializes in providing accounting and financial reporting functions for public and private companies, and the founders and senior managers are highly experienced alumni of Big 4 accounting firms. The number and seniority of personnel in the external firm performing the accounting and financial reporting functions for the Company were increased during 2015 and have remained at increased levels since then. In addition, during 2015 the Company retained a full-time controller. During 2016 the Company engaged a second external firm: one that specializes in Sarbanes-Oxley matters and helping public companies improve their disclosure controls and procedures. During 2017, the Company undertook further efforts, adopting enhanced governance guidelines and related party policies, new procedures, an added Board Committee, and expanded use of outside legal experts and internal controls experts, as described below.

During the year ended December 31, 2017, the Company implemented new controls and systems, and further enhanced existing controls. The Company adopted updated and enhanced Corporate Governance Guidelines, Related Party Transactions Policy and Audit Committee Charter. The Company implemented a system of related party questionnaires, expanding and formalizing its processes for identifying and addressing related party matters. The Company established a new committee of the Board – the Conflicts Committee – comprised of independent directors, which is responsible for additional review of potential related party transactions and other potential conflicts matters, in addition to review by Management and by the full Board.

The Company greatly expanded its use of outside counsel to prepare, review and maintain key documents, including regulatory filings, agreements, financing documents and corporate documents, and to advise on corporate and Board processes. The Company also added and consulted regularly with outside counsel expert in the federal securities laws.

The Company continued and expanded its work with outside experts for testing and improvement of controls. Unfortunately, the lead outside expert passed away in December 2017, and the Company is now going through the process of replacing him and starting to replicate the work he had performed during the year.

During 2017, we have made substantial progress on remediation of the three remaining material weaknesses identified above:

- We have further segregated duties within our finance and accounting functions, to ensure that incompatible duties are segregated.
- We have implemented a new process in connection with the Company's year-end financial close to more fully document the Company's identification of related parties and related party transactions, to ensure that all material transactions and developments impacting the financial statements are reflected and properly recorded.
- We have implemented a new process to more fully document the Company's accounting operations throughout the organization, including the review, supervision and monitoring taking place.
- We have expanded the personnel resources allocated to our Company's internal controls over financial reporting, and the activities performed for our Company, by the two external firms referred to above.
- We plan to recruit further personnel, as resources permit, to enable still further segregation of duties and increased oversight.
- We have established a conflicts committee of the Board to provide an additional layer of review, in addition to full Board review and approval of related party transactions.

We plan to continue taking steps to improve our internal control system and to address the remaining deficiencies, but the specific nature and timing of such steps is uncertain and our ability to retain or attract qualified individuals to undertake these functions is also uncertain. Other than the changes described above, there were no changes in the Company's internal control over financial reporting identified in connection with the evaluation required by paragraph (d) of the Exchange Act Rules 13a-15 or 15d15 that occurred during the quarter ended December 31, 2017 that materially affected, or were reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information.

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Directors

Our current directors are identified below.

Name	Age	Position
Linda F. Powers	62	Class III Director, Chairperson, Chief Executive Officer and President
Dr. Alton L. Boynton	73	Class I Director, Chief Scientific Officer
Dr. Navid Malik	48	Class III Director
Jerry Jasinowski	78	Class II Director
J. Cofer Black	67	Class I Director

Director Biographies

Linda F. Powers. Ms. Powers has served as the Chairperson of our Board of Directors since her appointment on May 17, 2007 and Chief Executive Officer and President since June 8, 2011. Ms. Powers served as a managing director of Toucan Capital Fund II from 2001 to 2010, and Toucan Capital Fund III thereafter. She also has over 15 years' experience in corporate finance and restructurings, mergers and acquisitions, joint ventures and intellectual property licensing. Ms. Powers is a Board member of M2GEN (an affiliate of Moffitt Cancer Center), the Chinese Biopharmaceutical Association, and the Rosalind Franklin Society. She was the Chair of the Maryland Stem Cell Research Commission for the first two years of the state's stem cell funding program, and has served an additional four years on the Commission. Ms. Powers served for several years on a Steering Committee of the National Academy of Sciences, evaluating government research funding, and has been appointed to three Governors' commissions created to determine how to build the respective states' biotech and other high-tech industries. For more than six years, Ms. Powers taught an annual internal course at the National Institutes of Health for the bench scientists and technology transfer personnel on the development and commercialization of medical products. Ms. Powers serves on the boards of several private biotechnology companies. Ms. Powers holds a B.A. from Princeton University, where she graduated magna cum laude and Phi Beta Kappa. She also earned a J.D., magna cum laude, from Harvard Law School. We believe Ms. Powers' background and experience make her well qualified to serve as a Director.

Alton L. Boynton, Ph.D. Dr. Boynton co-founded our Company, has served as our Chief Scientific Officer and a Director since our inception in 1998, was appointed our Chief Operating Officer in August 2001, was appointed President in May 2003, and served as Chief Executive Officer from June 2007 to June 2011. Prior to founding our Company, Dr. Boynton headed the Molecular Oncology research lab at the Pacific Northwest Research Foundation (the original foundation of Bill Hutchinson, from which the Fred Hutchinson Cancer Center was spun off). Dr. Boynton also served as Director of the Department of Molecular Medicine of Northwest Hospital from 1995 to 2003 where he coordinated the establishment of a program centered on carcinogenesis. Prior to joining Northwest Hospital, Dr. Boynton was Associate Director of the Cancer Research Center of Hawaii, The University of Hawaii, where he also held the positions of Director of Molecular Oncology of the Cancer Research Center and Professor of Genetics and Molecular Biology. Dr. Boynton received his Ph.D. in Radiation Biology from the University of Iowa in 1972. We believe Dr. Boynton's background and experience, in both the science and the history of our product and the Company, make him well qualified to serve as a Director.

Dr. Navid Malik. Dr. Malik was appointed to the Board of Directors in April 2012. Dr. Malik was previously the Head of Life Sciences Research at Cenkos Securities Plc. in the U.K., an institutional stockbroking securities firm. From September 2011 through January 2012, Dr. Malik was the Head of Life Sciences Research at Sanlam (Merchant Securities), a global financial services firm. Dr. Malik was Partner and Head of Life Sciences at Matrix Investment Banking Division, Matrix Group, a financial services firm in London, from December 2008 through September 2011. Dr. Malik was a Senior Pharmaceuticals and Biotechnology Analyst at Wimmer Financial LLP from September 2008 through December 2008, and was the Senior Life Sciences Analyst at Collins Stewart Plc from January 2005 through September 2008. In 2011, Dr. Malik was awarded two StarMine Awards (awarded each year by Thomson Reuters and the Financial Times): Number One Stock Picker in the European Pharmaceutical Sector, and Number Two Stock Picker in the U.K. and Ireland Healthcare Sector. Dr. Malik holds a Ph.D. in Drug Delivery within Pharmaceutical Sciences, as well as degrees in Biomedical Sciences Research (M.Sc.) and Biochemistry and Physiology (B.Sc., joint honors). Dr. Malik also holds an MBA in finance from the City University Business School, London. We believe that Dr. Malik's extensive experience in the life sciences fields and investment banking sector make him well qualified to serve as a Director.

Jerry Jasinowski. Mr. Jasinowski was appointed to the Board of Directors in April 2012. Mr. Jasinowski currently serves on the Boards of Procurian and the Washington Tennis and Education Foundation and has held directorships in several other companies since 1990. From 2004 through 2007, Mr. Jasinowski served as the President of the Manufacturing Institute, an organization dedicated to improving and expanding manufacturing in the United States, of which he was a founder. Mr. Jasinowski was also the President and CEO of the National Association of Manufacturers, a trade association with 13,000 corporate members from 1990 to 2004. Mr. Jasinowski holds an A.B. in Economics from Indiana University and an M.A. in Economics from Columbia University. We believe that Mr. Jasinowski's extensive experience across a wide range of manufacturing, technology, and financial firms, including Fortune 1000 and Fortune 500 companies, make him well qualified to serve as a Director.

J. Cofer Black. Ambassador Black was appointed to the Board of Directors in January 2016. Ambassador Black is an internationally renowned U.S. government leader and expert in cybersecurity, counterterrorism and national security. Since 2009, he has served as Vice President for Global Operations at Blackbird Raytheon Technologies, a division of Raytheon Company, a NYSE-listed security company. From 2004 until 2008, he provided strategic guidance and business development as Vice Chairman of Blackwater Worldwide and as Chairman of Total Intelligence Solutions. During 2002-2005, he was appointed by the President of the United States to serve as the Ambassador, Coordinator for Counterterrorism, reporting directly to the Secretary of State for developing, coordinating and implementing American counterterrorism policy. Prior to his role as Ambassador, he served a 28-year career in the Central Intelligence Agency, reaching Senior Intelligence Service (SIS-4) level as Director, Counterterrorist Center (D/CTC), where he managed 1,300 professional personnel and an annual operational budget of more than one billion dollars. Ambassador Black is experienced representing the United States at the Head of State level, managing media as a diplomatic spokesperson and in public speaking as keynote speaker both as a senior U.S. Government official and business leader. Ambassador Black has received numerous awards and recognitions throughout his career, including the Distinguished Intelligence Medal (the CIA's highest award for achievement). Ambassador Black received a B.A. in International Affairs from the University of Southern California in 1973 and a M.A. in International Affairs for the University of Southern California in 1974. We believe Ambassador Black's background and government experience make him well qualified to serve as a Director.

Executive Officers

Our current executive officers are identified below.

Name	Age	Position
Linda F. Powers	62	Chief Executive Officer and President
Alton L. Boynton, Ph.D.	73	Class I Director, Chief Scientific Officer
Leslie J. Goldman	72	Senior Vice President
Marnix L. Bosch, Ph.D.	59	Chief Technical Officer

Linda F. Powers. Please see "Director Biographies" above.

Alton L. Boynton, Ph.D. Please see "Director Biographies" above.

Leslie J. Goldman joined us in June 2011, and serves as Senior Vice President. In this capacity, Mr. Goldman has responsibility for legal matters, investor relations and financing activities. Prior to joining us, Mr. Goldman was a partner at the law firm of Skadden, Arps for over 30 years, specializing in a wide array of advanced technologies and their commercialization. Mr. Goldman also serves as an advisor to a number of other technology companies. In addition, for eight years, Mr. Goldman served as Chairman of the Board of a group of TV stations in four mid-size cities across the country. Mr. Goldman received a B.A. from the University of Michigan in 1967 and a J.D. from the University of Michigan in 1970.

Marnix L. Bosch joined us in 2000, and serves as our Chief Technical Officer. In this capacity, Dr. Bosch plays a key role in the preparation and submission of our regulatory applications, as well as ongoing development of our product lines, and ongoing development and/or acquisition of new technologies. Dr. Bosch led the process of designing the protocols, and managed the successful preparation and submission of our Investigational New Drug (IND) applications for FDA approval to conduct clinical trials for prostate cancer, brain cancer, ovarian cancer and multiple other cancers. He also led the processes for other regulatory submissions in both the U.S. and abroad (including the successful applications for orphan drug status in both the U.S. and Europe for DCVax-L for brain cancer). He spearheaded the development of our manufacturing and quality control processes, and is working with Cognate BioServices, Inc. on next-generation further development of these processes. Prior to joining us in 2000, Dr. Bosch worked at the Dutch National Institutes of Health (RIVM) as head of the Department of Molecular Biology, as well as in academia as a professor of Pathobiology. He has authored more than 40 peer-reviewed research publications in immunology and virology, and is an inventor on several patent applications on dendritic cell product manufacturing.

Corporate Governance

Director Independence

Our Board of Directors has determined that a majority of the Board consists of members who are currently "independent" as that term is defined within the meaning of Section 5605(a)(2) of the NASDAQ Marketplace Rules. The Board of Directors considers Messrs, Malik and Jasinowski, and Ambassador Black to be independent, and also considered Ms. Susan Bayh to be independent while she was a member of our Board during 2016.

Audit Committee

The Audit Committee has responsibility for recommending the appointment of our independent accountants, supervising our finance function (which includes, among other matters, our investment activities), reviewing our internal accounting control policies and procedures, and providing the Board such additional information and materials as it may deem necessary to make the Board aware of significant financial matters which require the attention of the Board. The Audit Committee discusses the financial statements with management, approves filings made with the SEC, and maintains the necessary discussions with the Company's independent accountants. The Audit Committee acts under a written charter.

The Audit Committee currently consists of Messrs, Malik and Jasinowski. The Company considers the Audit Committee Chair, Jerry Jasinowski, to be a financial expert. Our Board of Directors has determined that Messrs, Malik and Jasinowski are independent within the meaning of Section 5605(a)(2) of the NASDAQ Marketplace Rules as well as pursuant to the additional test for independence for audit committee members imposed by SEC regulation and Section 5605(c)(2)(A) of the NASDAQ Marketplace Rules. The Audit Committee is established in accordance with Section 3(a)(58)(A) of the Exchange Act.

Compensation Committee

The Compensation Committee is responsible for determining the overall compensation levels of our executive officers and administering our equity compensation plans. The Compensation Committee does not delegate its authority pursuant to its written charter. The Board has determined that all of the members are "independent" under the current listing standards of NASDAQ.

Nominations Committee

The Nominations Committee is responsible for assisting the Board of Directors in, among other things, effecting Board organization, membership and function, including: identifying qualified Board nominees; and effecting the organization, membership and function of Board committees, including composition and recommendation of qualified candidates. The Nominations Committee shall identify and evaluate the qualifications of all candidates for nomination for election as directors. Potential nominees are identified by the Board of Directors based on the criteria, skills and qualifications that have been recognized by the Nominations Committee. While our nomination policy does not prescribe specific diversity standards, the Nominations Committee and its independent members seek to identify nominees that have a variety of perspectives, professional experience, education, difference in viewpoints and skills, and personal qualities that will result in a well-rounded Board of Directors. The Committee operates under a written charter. Given the size and ownership of the company, it does it have a policy for consideration of director candidates recommended by shareholders.

The Nominations Committee currently consists of Messrs, Malik and Jasinowski. The Board of Directors has determined that all of the members are "independent" under the current listing standards of NASDAQ.

Information Regarding Meetings of the Board and Committees

The business of our Company is under the general oversight of our Board, as provided by the laws of Delaware and our bylaws. During the fiscal year ended December 31, 2017, the Board met more than 24 times and also conducted business by written consent. There were at least 4 Audit Committee meetings and 2 compensation committee meetings. Each person who was a director during 2017 attended at least 75% of the Board meetings. We do not have a formal written policy with respect to Board members' attendance at our annual meeting of stockholders. All five of our directors attended the 2017 annual meeting.

Code of Business Conduct and Ethics

We have adopted a formal Code of Business Conduct and Ethics applicable to all Board members, executive officers and employees. A copy of our Code of Business Conduct and Ethics is posted on our website (www.nwbio.com) and will be provided free of charge upon request to Secretary, Northwest Biotherapeutics, Inc., 4800 Montgomery Lane, Suite 800, Bethesda, Maryland, 20814.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act requires our directors, executive officers and persons who own more than 10% of our stock, or Reporting Persons, to file with the SEC initial reports of ownership and changes in ownership of our stock. Reporting Persons are required by SEC regulations to furnish us with copies of all Section 16(a) reports they file. To our knowledge, based solely on our review of the copies of such reports received, we believe that during our fiscal year ended December 31, 2017 all Reporting Persons timely complied with all applicable filing requirements. Cognate BioServices, Inc., an affiliate of the Company, did not timely file certain Form 4 filings in connection with its acquisition or disposition of our securities.

ITEM 11. EXECUTIVE COMPENSATION

Compensation Discussion and Analysis

Executive Compensation Philosophy and Objectives

The Company's compensation philosophy is to assure that the Company's compensation and benefits policies attract and retain the key employees necessary to support the Company's growth and success, both operationally and strategically, and to motivate the executives to achieve short- and long-term goals with the ultimate objective of creating sustainable improvements in stockholder value.

Elements of Compensation

Base Salary. All full time Named Executive Officers are paid a base salary. Base salaries for our executives are established based on the scope of their responsibilities, professional qualifications, academic background and the other elements of the executive's compensation, including equity-based compensation. Base salaries are reviewed at least annually, and may be increased to align salaries with market levels or Company and/or individual performance after taking into account the subjective evaluation previously described.

Bonuses. All full time Named Executive Officers are eligible for bonuses from time to time, on a case by case basis, based on Company and/or individual performance considerations and/or on retention considerations.

Equity Incentive Compensation. We believe that long-term performance is achieved through an ownership culture participated in by our Named Executive Officers through the use of stock-based awards. The Company maintains an equity compensation plan for such awards. On June 13, 2017, we granted options (the "Options") to acquire shares of our common stock to Dr. Marnix Bosch and Dr. Alton Boynton. The Options were granted pursuant to the Second Amended and Restated Northwest Biotherapeutics, Inc. 2007 Stock Plan.

Determination of Compensation

The Company's executive compensation program for the Named Executive Officers is administered by the Board of Directors' Compensation Committee. As described above, the Compensation Committee consists of two independent directors, all of whom have considerable experience in executive compensation issues and management development.

The Compensation Committee's guiding principle is to assure that the Company's compensation and benefits policies attract and retain the key employees necessary to support the Company's growth and success, both operationally and strategically, and to motivate the executives to achieve short- and long-term goals with the ultimate objective of creating sustainable improvements in stockholder value.

Director Compensation

The following table sets forth certain information concerning compensation paid or accrued to our non-executive directors for the year ended December 31, 2017.

Name	Year	Fees Earned or Paid in Cash ($)	All Other Compensation ($)	Total ($)
Robert A. Farmer*	2017	$ 87,500	$ 236,000**	$ 323,500
Dr. Navid Malik	2017	$ 150,000	$ -	$ 150,000
Jerry Jasinowski	2017	$ 150,000	$ -	$ 150,000
J. Cofer Black	2017	$ 150,000	$ -	$ 150,000

* Mr. Farmer passed away on July 22, 2017
** 1.3 million shares of common stock was granted with fair value of $0.18 per share on July 6, 2017.

Executive Compensation

Summary Compensation Table

The following table sets forth certain information concerning compensation paid or accrued to our executive officers, referred to as our Named Executive Officers, during the years ended December 31, 2017 and 2016.

Name and Principal Position	Year	Salary ($)	Bonus (S)	Option Awards ($)	Total ($)
Linda F. Powers	2017	$ 502,000	$ -	$ -	$ 502,000
Chairperson, President & Chief Executive Officer	2016	$ 502,000	$ -	$ -	$ 502,000
Alton L. Boynton, Ph.D.	2017	$ 325,000	$ -	$ 216,000	$ 541,000
Chief Scientific Officer and Secretary	2016	$ 325,000	$ -	$ -	$ 325,000
Leslie Goldman	2017	$ 375,000	$ -	$ -	$ 375,000
Senior Vice President, Business Development	2016	$ 375,000	$ -	$ -	$ 375,000
Marnix L. Bosch, Ph.D.	2017	$ 375,000	$ -	$ 505,000	$ 880,000
Chief Technical Officer	2016	$ 375,000	$ -	$ -	$ 375,000
Other					
Susan Goldman *	2017	$ 120,000	$ -	$ -	$ 120,000
	2016	$ 118,000	$ -	$ -	$ 118,000

* Susan Goldman is the wife of Leslie Goldman. She is a former nurse who serves as Director of Patient Affairs, handling compassionate use cases. Mrs. Goldman was paid $120,000 and $118,000 for the year ended December 31, 2017 and 2016, respectively, for services performed, respectively.

Grants of Plan-Based Awards

The Company has had an equity compensation plan for employees, directors and others, which expired in June 2017. The Amended and Restated 2007 Stock Plan, which was approved by shareholders at the Company's 2013 Annual Meeting of Stockholders, and which amended and restated a prior equity compensation plan. On June 13, 2017, we granted options (the "Options") to acquire shares of our common stock to Dr. Marnix Bosch and Dr. Alton Boynton. The Options were granted pursuant to the Second Amended and Restated Northwest Biotherapeutics, Inc. 2007 Stock Plan.

Outstanding Equity Awards at Fiscal Year-End

The following table shows outstanding stock option awards classified as exercisable and un-exercisable as of December 31, 2017.

	Option Awards					Stock Awards			
Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price ($)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested ($)	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested ($)
Linda F. Powers Chief Executive Officer and President	592,500(1)	296,250	-	10.56	6/21/2018	-	-	-	-
Alton Boynton Chief Scientific Officer and Secretary	2,268,619(2)	1,134,316	-	0.25	6/13/2022	-	-	-	-
Leslie Goldman Senior Vice President, Business Development	93,535(3)	46,875	-	10.56	6/21/2018	-	-	-	-
Marnix Bosch	93,846(4)	73,750	-	10.56	6/21/2018	-	-	-	-
Chief Technical Officer	31,770(5)	21,355	-	11.20	6/23/2022	-	-	-	-
	15,625(6)	-	-	8.80	8/20/2022	-	-	-	-
	5,293,451(7)	2,646,731	-	0.25	6/13/2022				

(1) In conjunction with the employment agreement entered into between us and Ms. Powers on June 8, 2011, and in recognition of Ms. Powers' service to our Company while serving as Chair during the preceding four years, we granted Ms. Powers an option to purchase 870,637 shares of our stock with an exercise price of $10.56 per share. One-third of the options vested on the grant date, and upon vesting became subject to a lock-up which extended to the earlier of 18 months or our reaching the primary endpoint of our GBM brain cancer clinical trial. One-third of the options vested in equal monthly portions over the term of the employment agreement. The remaining one-third will vest in portions tied to material milestones in multiple programs, if and to the extent those milestones are achieved, or may vest in the Board's discretion.

(2) This options (the "Options") were granted under the Second Amended and Restated Northwest Biotherapeutics, Inc. 2007 Stock Plan on June 13, 2017. The Options are exercisable at a price of $0.25 per share, and have a 5-year exercise period. 50% of the Options vested on the grant date, and 50% will vest over a 24-month period in equal monthly installments, provided that the recipient continues to be employed by the Company. The unvested portions of the Options are subject to accelerated vesting upon (i) a change of effective control of the Company, (ii) the filing of the first Biologics License Application or other application for product approval in any jurisdiction, (iii) completion of any randomized clinical trial that meets its endpoint(s) (Phase II or Phase III), (iv) decision by the Board, in its discretion or (v) the death of the recipient.

(3) In conjunction with the employment agreement entered into between us and Mr. Goldman on June 8, 2011, we issued Mr. Goldman an option to purchase 137,750 shares of our stock with an exercise price of $10.56 per share. One-third of the options vested on the grant date, and upon vesting became subject to a lock-up which extended to the earlier of 18 months or our reaching the primary endpoint of our GBM brain cancer clinical trial. One-third vested in equal monthly portions over the term of the employment agreement. The remaining one-third will vest in portions tied to material milestones in multiple programs, if and to the extent those milestones are achieved, or may vest in the Board's discretion.

(4) In conjunction with the employment agreement entered into between us and Dr. Bosch on June 8, 2011, we issued Dr. Bosch an option to purchase 145,473 shares of our stock with an exercise price of $10.56 per share. 51,971 options vested on the grant date. 7,500 options vested in equal monthly portions over the term of the employment agreement. The remaining 51,627 options will vest in portions tied to material milestones in multiple programs, if and to the extent those milestones are achieved, or may vest in the Board's discretion.

(5) These options were granted under the 2007 Stock Option Plan. 1,250 options vested each month until May 31, 2013. In addition, 6,250 options vest upon each of Swiss Approval, full Enrollment in Phase II Glioblastoma Multiforme clinical study and FDA approval of NDA.

(6) This option was granted under the 2007 Stock Option Plan. This option grant vested over the balance of 2009 with 7,813 vesting on the grant date and the remainder vesting on December 31, 2009.

(7) These options (the "Options") were granted under the Second Amended and Restated Northwest Biotherapeutics, Inc. 2007 Stock Plan on June 13, 2017. The Options are exercisable at a price of $0.25 per share, and have a 5-year exercise period. 50% of the Options vested on the grant date, and 50% will vest over a 24-month period in equal monthly installments, provided that the recipient continues to be employed by the Company. The unvested portions of the Options are subject to accelerated vesting upon (i) a change of effective control of the Company, (ii) the filing of the first Biologics License Application or other application for product approval in any jurisdiction, (iii) completion of any randomized clinical trial that meets its endpoint(s) (Phase II or Phase III), (iv) decision by the Board, in its discretion or (v) the death of the recipient.

Pension Benefits

Our Named Executive Officers received no benefits in fiscal 2017 from the Company under defined pension or defined contribution plans.

Non-Qualified Deferred Compensation

Our Named Executive Officers received no benefits in fiscal 2017 from the Company under non-qualified deferred compensation plans.

Employment Agreements

The Company entered into employment agreements with its Named Executive Officers in 2011. Those agreements have expired and the Company intends to enter into new employment agreements with its executives.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS-EQUITY COMPENSATION PLAN INFORMATION

Amended and Restated 2007 Stock Option Plan

Our Board of Directors and the holders of a majority of the voting power of our stockholders adopted the Amended and Restated 2007 Stock Option Plan, or the Plan. The plan provides that 20% of our total issued and outstanding shares are to be allocated to the Stock Option Plan, and that, on the effective date of any increase in our capitalization, the aggregate numbers of shares of common stock that are available for issuance shall automatically be increased by such number of shares as is equal to the number of shares sufficient to cause the option pool to remain equal to 20% of our issued and outstanding stock at such time. Pursuant to the Plan, if on the date of any increase in our capitalization 20% of our total issued and outstanding shares of stock is less than the number of shares of common stock available for issuance under the Plan, no change will be made to the aggregate number of shares of common stock issuable under the Plan for that year (such that the aggregate number of shares available for issuance under the Plan will never decrease).

The following table presents information regarding the beneficial ownership of our common stock as of April 9, 2018, by:

- each person, or group of affiliated persons, who is known by us to own beneficially 5% or more of any class of our equity securities;
- our directors and nominees for director;
- each of our named executive officers, as defined in Item 402(a)(3) of Regulation S-K; and
- our directors and executive officers as a group.

In order to determine the beneficial ownership by a given person as set forth in the table below, the fully diluted shares, options and warrants held by the person are deemed held by that person and counted in addition to their issued and outstanding shares. However, for all other persons, only the actual issued and outstanding shares they hold are counted.

Shares of Common Stock beneficially owned and the respective percentages of beneficial ownership of Common Stock assume the exercise of all options, warrants and other securities convertible into Common Stock beneficially owned by such person or entity currently exercisable or exercisable within 60 days of April 9, 2018. Shares issuable pursuant to the exercise of stock options and warrants exercisable within 60 days are deemed outstanding and held by the holder of such options or warrants for computing the percentage of outstanding Common Stock beneficially owned by such person, but are not deemed outstanding for computing the percentage of outstanding Common Stock beneficially owned by any other person.

Except as indicated by the footnotes below, we believe, based on the information furnished to us, that the persons and the entities named in the table have sole voting and investment power with respect to all shares of Common Stock that they beneficially own, subject to applicable community property laws, and/or contractual or other obligations, if any. The table below is based upon the information supplied by our transfer agent, Computershare Trust Company, N.A., the Company's records and from Schedules 13D and 13G filed with the Securities and Exchange Commission (the "SEC").

Except as otherwise noted, the address of the individuals in the following table is c/o Northwest Biotherapeutics, Inc., 4800 Montgomery Lane, Suite 800, Bethesda, MD 20814.

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned	Percentage [1]
Officers and Directors		
Alton L. Boynton, Ph.D. [2]	2,493,490	*%
Marnix L. Bosch, Ph.D., M.B.A. [3]	5,940,754	1.4%
Linda F. Powers [4]	109,849,800	21.3%
Leslie Goldman [5]	11,778,471	2.8%
Dr. Navid Malik[6]	5,109,062	1.2%
Jerry Jasinowski [7]	4,774,137	1.1%
J. Cofer Black[8]	964,687	*%
All executive officers and directors as a group (7 persons)	140,910,401	25.8%
5% Security Holders		
Cognate BioServices, Inc.[9] 4800 East Shelby Drive Suite 108, Memphis, TN	124,621,395	23.7%
Woodford Investment Management LLP[10] 9400 Garsington Road Oxford OX4 2NH, UK	24,815,028	6.0%

* Less than 1%.

(1) Percentage represents beneficial ownership percentage of Common Stock calculated in accordance with SEC rules and does not equate to voting percentages. Percentage is based upon 414,665,188 shares of Common Stock issued and outstanding as of April 9, 2018. Beneficial ownership is determined in accordance with the rules of the Securities and Exchange Commission. In computing the number of shares of Common Stock beneficially owned and the percentage of ownership of such person, we deemed to be outstanding all shares of Common Stock and Preferred Stock subject to options and warrants currently exercisable or convertible, or exercisable or convertible within 60 days of the filing date of this proxy statement. However, we did not deem such shares outstanding for the purpose of computing the percentage ownership of any other person.

(2) Consists of (i) 12,189 shares of Common Stock held by Dr. Boynton and (ii) 2,481,301 shares of Common Stock underlying Options held by Dr. Boynton as equity compensation that are vested, or will vest within 60 days of this filing. An aggregate of 2,339,513 of the Options (which are included in the foregoing 2,481,301 Options) are currently vested and immediately exercisable for the purchase of Common Stock at an exercise price of $0.25 per share, and an additional 1,063,422 Options held by Dr. Boynton will vest monthly over a period of 24 months from the date of initial issuance, becoming exercisable for the purchase of Common Stock on the same terms, after they have vested.

(3) Consists of (i) 9,802 shares of Common Stock held by Dr. Bosch and (ii) 5,930,952 shares of Common Stock underlying Options held by Dr. Bosch as equity compensation that are vested, or will vest within 60 days of this filing. An aggregate of 5,458,871 of the Options (which are included in the foregoing 5,930,952 Options) are currently vested and immediately exercisable for the purchase of Common Stock at an exercise price of $0.25 per share, and an additional 2,481,311 Options held by Dr. Bosch will vest monthly over a period of 24 months from the date of initial issuance, becoming exercisable for the purchase of Common Stock on the same terms, after they have vested.

(4) Consists of (i) 5,072,000 shares of Common Stock held by Ms. Powers; (ii) 804,145 shares of Common Stock held by Toucan Capital Fund III, L.P., (iii) 2,211,784 shares of Common Stock held by Toucan Partners, LLC; Ms. Powers has voting and dispositive power over the securities owned by the Toucan entities, (iv) 17,742,500 shares of Common Stock underlying options held by Ms. Powers as equity compensation that are vested, or will vest within 60 days of this filing. An aggregate of 15,925,000 of the Options (which are included in the foregoing 17,742,500 Options) are currently vested and immediately exercisable for the purchase of Common Stock at an exercise price of $0.23 per share, and an additional 13,475,000 Options held by Ms. Powers will vest monthly over a period of 24 months from the date of initial issuance, becoming exercisable for the purchase of Common Stock on the same terms, after they have vested, (v) 2,591,176 shares of Series A Preferred Stock, convertible into 25,911,760 shares of common stock, and Class D-1 Warrants to acquire an aggregate of up to 29,411,760 additional shares of Common Stock owned by Ms. Powers (vi) 8,695,652 Class D-2 Warrants to acquire up to an aggregate of 8,695,652 shares of Common Stock, issued in connection with a note and loan agreement dated March 14, 2018 between the Company and Ms. Powers, (vii) 869,565 Class D-2 Warrants to acquire up to an aggregate of 869,565 shares of Common Stock, issued in connection with a note and loan agreement dated March 19, 2018, between the Company and Ms. Powers, (viii) 1,739,130 shares of Series B Preferred Stock, convertible into 17,391,304 shares of Common Stock and 8,695,652 Class D-2 Warrants to acquire up to an aggregate of 8,695,652 shares of Common Stock, issuable upon conversion of the note and loan agreement dated March 14, 2018, between the Company and Ms. Powers, and (ix) 173,913 shares of Series B Preferred Stock, convertible into 1,739,130 shares of Common Stock and 869,565 Class D-2 Warrants to acquire up to an aggregate of 869,565 shares of Common Stock, issuable upon conversion of the note and loan agreement dated March 19, 2018, between the Company and Ms. Powers.

(5) Consists of (i) 172,742 shares of Common Stock held by Mr. Goldman, (ii) 78,862 shares of Common Stock underlying currently exercisable warrants, and (iii) 11,526,867 shares of Common Stock underlying Options held by Mr. Goldman as equity compensation that are vested, or will vest within 60 days of this filing. An aggregate of 10,616,666 of the Options (which are included in the foregoing 11,526,867 Options) are currently vested and immediately exercisable for the purchase of Common Stock at an exercise price of $0.23 per share, and an additional 8,983,334 Options held by Mr. Goldman will vest monthly over a period of 24 months from the date of initial issuance, becoming exercisable for the purchase of Common Stock on the same terms, after they have vested.

(6) Consists of (i) 10,000 shares of Common Stock held by Dr. Malik and (ii) 5,099,062 shares of Common Stock underlying Options held by Dr. Malik as equity compensation that are vested, or will vest within 60 days of this filing. An aggregate of 4,721,354 of the Options (which are included in the foregoing 5,099,062 Options) are currently vested and immediately exercisable for the purchase of Common Stock at an exercise price of $0.30 per share, and an additional 4,343,646 Options held by Dr. Malik will vest monthly over a period of 24 months from the date of initial issuance, becoming exercisable for the purchase of Common Stock on the same terms, after they have vested.

(7) Consists of (i) 1,365,031 shares of Common Stock held by Mr. Jasinowski, (ii) 652,857 shares of Common Stock underlying currently exercisable warrants, and (iii) 2,756,249 shares of Common Stock underlying Options held by Dr. Boynton as equity compensation that are vested, or will vest within 60 days of this filing. An aggregate of 2,552,083 of the Options (which are included in the foregoing 2,756,249 Options) are currently vested and immediately exercisable for the purchase of Common Stock at an exercise price of $0.30 per share, and an additional 2,347,917 Options held by Mr. Jasinowski will vest monthly over a period of 24 months from the date of initial issuance, becoming exercisable for the purchase of Common Stock on the same terms, after they have vested.

(8) Consists of 964,687 shares of Common Stock underlying Options held by Mr. Black as equity compensation that are vested, or will vest within 60 days of this filing. An aggregate of 893,229 of the Options (which are included in the foregoing 964,687 Options) are currently vested and immediately exercisable for the purchase of Common Stock at an exercise price of $0.30 per share, and an additional 821,771 Options held by Mr. Black will vest monthly over a period of 24 months from the date of initial issuance, becoming exercisable for the purchase of Common Stock on the same terms, after they have vested.

(9) Consists of (i) 13,684,294 shares of Common Stock held by Cognate BioServices, Inc., (ii) 52,008,650 shares of Common Stock underlying shares of Series B Preferred Stock, and (iii) 58,928,451 shares of Common Stock underlying exercisable warrants.

(10) Upon information and belief, Neil Woodford holds the voting and dispositive power over the 24,815,028 shares of Common Stock held by Woodford Investment Management LLP.

The information required by Item 12 appearing under the captions “Security Ownership of Certain Beneficial Owners and Management” and “Executive Compensation-Equity Compensation Plan Information” of the Company’s Form 10-K/A is incorporated herein by reference. The Company intends to file its Form 10-K/A with the SEC not later than 120 days after December 31, 2017.

ITEM 13. CERTAIN RELATIONSHIPS, RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

Cognate BioServices

Cognate BioServices, a contract manufacturer of our DCVax products, was a related party during the year ended December 31, 2017, and until February 2018. Cognate BioServices was owned by Toucan Capital Fund III, L.P., an investment fund in which our Chairman and CEO, Linda Powers, had a material interest and operational control. Cognate affiliates in the U.K. (Cognate BioServices, Ltd.), Germany (Cognate BioServices GmbH) and Israel (Cognate Israel) were likewise related parties. However, Cognate/Germany and Cognate/Israel were closed during 2017, and are no longer in operation. Cognate/UK was spun off from Cognate/US, became a separate company (owned by Toucan Capital Fund III, as was Cognate/US), and changed its name to Advent BioServices.

The Company's agreements with Cognate, and payments and stock issuances to Cognate, as well as vesting, lock-up and other restrictions on the shares, accounts payable to Cognate, and loans made by Cognate to the Company are described Note 9 to the financial statements in this report on Form 10-K for the fiscal year ended December 31, 2017. The Company and Cognate BioServices, an affiliate of the Company, entered into a DCVax-L Manufacturing Services Agreement, a DCVax-Direct Manufacturing Services Agreement, an Ancillary Services Agreement and a Manufacturing Expansion Agreement, each effective as of January 17, 2014, and those agreements followed and superseded Manufacturing Services Agreements in 2011 and 2007.

Review, approval or ratification of transactions with related persons

With respect to reviewing and approving related-party transactions, the Company has established a Conflicts Committee of independent directors of the Board, which reviews related-party transactions for potential conflicts of interests or other improprieties as well as for reasonableness, in addition to the full Board's review. Under SEC rules, related-party transactions are those transactions to which we are or may be a party in which the amount involved exceeds the lesser of $120,000 or one percent of the average of our total assets at year-end for the last two completed fiscal years, and in which any of our directors or executive officers or any other related person had or will have a direct or indirect material interest, excluding, among other things, compensation arrangements with respect to employment or board membership. Any transactions with officers, directors or 5% stockholders are on market-based terms, and are approved by a majority of our independent and disinterested directors.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Fees Paid to Marcum LLP

Marcum LLP was engaged in 2013 and served as our independent public accounting firm for the fiscal years ended December 31, 2017 and 2016.

Audit Fees

The aggregate fees billed and unbilled of the fiscal year ended December 31, 2017 and 2016 for professional services rendered by Marcum for the audit of our annual financial statements, the review of our financial statements included in our quarterly reports on Form 10-Q and consultations and consents were approximately $745,000 and $725,000, respectively.

Audit-Related Fees

There were no fees billed in the fiscal year ended December 31, 2017 and 2016 for assurance and related services rendered by Marcum related to the performance of the audit or review of our financial statements.

Tax and Other Fees

There were no fees billed in the fiscal year ended December 31, 2017 and 2016 for professional services rendered by Marcum for tax related services or other fees.

Policy on Audit Committee Pre-Approval of Audit and Permissible Non-Audit Services

Consistent with SEC policies and guidelines regarding audit independence, the Audit Committee is responsible for the pre-approval of all audit and permissible non-audit services provided by our principal accountants on a case-by-case basis. Our Audit Committee has established a policy regarding approval of all audit and permissible non-audit services provided by our principal accountants. Our Audit Committee pre-approves these services by category and service. Our Audit Committee pre-approved all of the services provided by our principal accountants during the fiscal years ended December 31, 2017, 2016 and 2015.

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

The Exhibits listed below are identified by numbers corresponding to the Exhibit Table of Item 601 of Regulation S-K. The Exhibits designated by an asterisk (*) are management contracts or compensatory plans or arrangements required to be filed pursuant to Item 15.

EXHIBIT INDEX

Exhibit Number	Description
3.1	Seventh Amended and Restated Certificate of Incorporation (incorporated by reference to exhibit 3.1 filed with the Registrant's Amendment No. 1 to the Registration Statement on Form S-1(File No. 333-134320) on July 17, 2006)
3.2	Third Amended and Restated Bylaws of the Company (incorporated by reference to exhibit 3.1 filed with the Registrant's Current Report on Form 8-K on June 22, 2007)
3.3	Amendment to Seventh Amended and Restated Certificate of Incorporation (incorporated by reference to exhibit 3.2 filed with the Registrant's Current Report on Form 8-K on June 22, 2007)
3.5	Amendment to Seventh Amended and Restated Certificate of Incorporation (incorporated by reference to exhibit 3.1 filed with the Registrant's Quarterly Report on Form 10-Q on May 21, 2012)
3.6	Amendment to Seventh Amended and Restated Certificate of Incorporation (incorporated by reference to exhibit 3.1 filed with the Registrant's Current Report on Form 8-K on September 26, 2012).
3.7	Amendment to Third Amended and Restated Bylaws of the Company (incorporated by reference to exhibit 3.1 filed with the Registrant's Current Report on Form 8-K on December 11, 2012)
3.8	Amended and Restated Certificate of Designations of Series A Convertible Preferred Stock (incorporated by reference to exhibit 3.1 filed with the Registrant's Current Report on Form 8-K on December 21, 2017).
3.9	Amended and Restated Certificate of Designations of Series B Convertible Preferred Stock (incorporated by reference to exhibit 3.1 filed with the Registrant's Current Report on Form 8-K on January 4, 2018).
4.1	Form of common stock certificate (incorporated by reference to exhibit 4.1 filed with the Registrant's Amendment No. 3 to the Registration Statement on Form S-1 (Registration No. 333-67350) on November 14, 2001)
4.2	Form of Warrant Agency Agreement by and between Northwest Biopharmaceuticals, Inc. and Computershare Trust Company, N.A. and Form of Warrant Certificate (incorporated by reference to Exhibit 4.2 filed with the Registrant's Form S-1 on December 4, 2012).
10.1	Form of Loan Agreement and 10% Convertible, Promissory Note between the Company and Toucan Partners, LLC (incorporated by reference to exhibit 10.4 filed with the Registrant's Form 10-K on April 17, 2007)
10.2	Second Amended and Restated Investor Rights Agreement dated June 22, 2007 between the Company and Toucan Capital Fund II, LLP (incorporated by reference to exhibit 10.3 filed with the Registrant's Current Report on Form 8-K on June 22, 2007)
10.3	Warrant to purchase securities of the Company dated July 26, 2005 issued to Toucan Capital Fund II, L.P (incorporated by reference to exhibit 10.3 filed with the Registrant's Current Report on Form 8-K on August 1, 2005)
10.4	Warrant to purchase securities of the Company dated September 7, 2005 issued to Toucan Capital Fund II, L.P (incorporated by reference to exhibit 10.3 filed with the Registrant's Current Report on Form 8-K on September 9, 2005)
10.5	Amended Form of Warrant to purchase securities of the Company dated November 14, 2005 and April 17, 2006, as amended April 14, 2007, issued to Toucan Partners, LLC (incorporated by reference to exhibit 10.21 filed with the Registrant's Form 10-K on April 17, 2007)
10.6	Form of Warrant to purchase securities of the Company dated April 14, 2007 issued to Toucan Partners, LLC (incorporated by reference to exhibit 10.22 filed with the Registrant's Form 10-K on April 17, 2007)
10.7	Loan Agreement and 10% Convertible Promissory Note in the principal amount of $100,000 between the Company and Toucan Partners, LLC, dated April 27, 2007 (incorporated by reference to exhibit 10.1 filed with the Registrant's Current Report on Form 8-K on May 3, 2007)
10.8	Warrant to purchase securities of the Company issued to Toucan Partners, LLC, dated April 27, 2007 (incorporated by reference to exhibit 10.2 filed with the Registrant's Current Report on Form 8-K on May 3, 2007)
10.9	Form of Toucan Partners Loan Agreement and 10% Convertible Note, dated as of June 1, 2007 (incorporated by reference to exhibit 10.1 filed with the Registrant's Current Report on Form 8-K on June 7, 2007)
10.10	Form of Toucan Partners Warrant, dated as of June 1, 2007 (incorporated by reference to exhibit 10.2 filed with the Registrant's Current Report on Form 8-K on June 7, 2007)
10.11	Amended and Restated Warrant to purchase Series A Preferred Stock issued to Toucan Capital Fund II, L.P., dated as of June 1, 2007 (incorporated by reference to exhibit 10.3 filed with the Registrant's Current Report on Form 8-K on June 7, 2007)
10.12	Warrant to purchase Series A-1 Preferred Stock issued to Toucan Capital Fund II, L.P., dated as of June 1, 2007 (incorporated by reference to exhibit 10.4 filed with the Registrant's Current Report on Form 8-K on June 7, 2007)
10.13	Warrant to purchase Series A-1 Preferred Stock issued to Toucan Capital Fund II, L.P., dated as of June 1, 2007 (incorporated by reference to exhibit 10.5 filed with the Registrant's Current Report on Form 8-K on June 7, 2007)
10.14	Northwest Biotherapeutics, Inc. $225,000 Demand Note dated June 13, 2007 (incorporated by reference to exhibit 10.1 filed with the Registrant's Current Report on Form 8-K on June 18, 2007)
10.15	Conversion Agreement dated June 15, 2007 and effective June 22, 2007 between the Company and Toucan Capital Fund II, LLP (incorporated by reference to exhibit 10.1 filed with the Registrant's Current Report on Form 8-K on June 22, 2007)
10.16*	Services Agreement between Cognate BioServices, Inc. and Northwest Biotherapeutics dated April 1, 2011 (incorporated by reference to exhibit 10.19 filed with the Registrant's Registration Statement on Form S-1 (Registration No. 333-182470 on June 29, 2012)

Exhibit Number	Description
10.17	1998 Stock Option Plan (incorporated by reference to exhibit 10.15 filed with the Registration Statement on Form S-1 (Registration No. 333-67350) on August 13, 2001)
10.18	1999 Executive Stock Option Plan (incorporated by reference to exhibit 10.16 filed with the Registration Statement on Form S-1 (Registration No. 333-67350) on August 13, 2001)
10.19	2001 Stock Option Plan (incorporated by reference to exhibit 10.17 filed with the Registration Statement on Form S-1 (Registration No. 333-67350) on August 13, 2001)
10.20	2001 Nonemployee Director Stock Incentive Plan (incorporated by reference to exhibit 10.18 filed with the Registration Statement on Form S-1 (Registration No. 333-67350) on August 13, 2001)
10.21	Employee Stock Purchase Plan (incorporated by reference to exhibit 10.19 filed with the Registration Statement on Form S-1 (Registration No. 333-67350) on August 13, 2001)
10.22	Form of Stock Option Agreement under the 2007 Stock Option Plan (incorporated by reference to exhibit 10.2 filed with the Registrant's Registration Statement on Form S-8 on November 21, 2007)
10.23	Loan Agreement and Promissory Note, dated May 6, 2008 between the Company and Al Rajhi Holdings WLL (incorporated by reference to exhibit 4.5 filed with the Registrant's Current Report on Form 8-K on May 15, 2008)
10.24	Loan Agreement and Promissory Note, dated August 19, 2008 between the Company and Toucan Partners LLC (incorporated by reference to exhibit 10.1 filed with the Registrant's Quarterly Report on Form 10-Q on November 19, 2008)
10.25	Loan Agreement and Promissory Note, dated October 1, 2008 between the Company and SDS Capital Group SPC, Ltd (incorporated by reference to exhibit 10.2 filed with the Registrant's Quarterly Report on Form 10-Q on November 19, 2008)
10.26	Warrant, dated October 1, 2008, between the Company and SDS Capital Group SPC, Ltd (incorporated by reference to exhibit 10.3 filed with the Registrant's Quarterly Report on Form 10-Q on November 19, 2008)
10.27	Loan Agreement and Promissory Note, dated October 21, 2008, between the Company and SDS Capital Group SPC, Ltd (incorporated by reference to exhibit 10.4 filed with the Registrant's Quarterly Report on Form 10-Q on November 19, 2008)
10.28	Form of Loan Agreement and Promissory Note, between the Company and a Group of Private Investors (incorporated by reference to exhibit 10.5 filed with the Registrant's Quarterly Report on Form 10-Q on November 19, 2008)
10.29	Form of Warrant, between the Company and SDS Capital Group SPC. Ltd and a Group of Private Investors (incorporated by reference to exhibit 10.6 filed with the Registrant's Quarterly Report on Form 10-Q on November 19, 2008)
10.30	Loan Agreement and Promissory Note, dated December 22, 2008, between the Company and Toucan Partners LLC (incorporated by reference to exhibit 10.62 filed with the Registrant's Form 10-K on April 15, 2009)
10.31	Form of Warrant, dated December 22, 2008, between the Company and Toucan Partners LLC (incorporated by reference to exhibit 10.63 filed with the Registrant's Form 10-K on April 15, 2009)
10.32	Form of Securities Purchase Agreement, by and among the Company and Al Rajhi Holdings (incorporated by reference to exhibit 10.64 filed with the Registrant's Form 10-K on April 15, 2009)
10.33	Securities Purchase Agreement, by and among the Company and a Group of Equity Investors (incorporated by reference to exhibit 10.65 filed with the Registrant's Form 10-K on April 15, 2009)
10.34	Form of Warrant, between the Company and a Group of Equity Investors (incorporated by reference to exhibit 10.66 filed with the Registrant's Form 10-K on April 15, 2009)
10.35	Form of Loan Agreement and Promissory Note, dated March 27 2009, between the Company and a Group of Private Lenders (incorporated by reference to exhibit 10.67 filed with the Registrant's Form 10-K on April 15, 2009)
10.36	Amended and Restated Northwest Biotherapeutics, Inc. 2007 Stock Option Plan (incorporated by reference to Schedule 14A filed on December 3, 2013)
10.37	DC Vax ®-L Manufacturing and Services Agreement between the Company and Cognate BioServices, Inc. dated January 17, 2014 (incorporated by reference to Exhibit 10.40 filed with the Company's Quarterly Report on Form 10-Q on May 15, 2014).
10.38	DC Vax ®-L Direct Manufacturing and Services Agreement between the Company and Cognate BioServices, Inc. dated January 17, 2014 (incorporated by reference to Exhibit 10.41 filed with the Company's Quarterly Report on Form 10-Q on May 15, 2014).
10.39	Ancillary Services Agreement between the Company and Cognate BioServices, Inc. dated January 17, 2014 (incorporated by reference to Exhibit 10.42 filed with the Company's Quarterly Report on Form 10-Q on May 15, 2014).
10.40	Manufacturing Expansion Service Agreement between the Company and Cognate BioServices, Inc. dated January 17, 2014 (incorporated by reference to Exhibit 10.43 filed with the Company's Quarterly Report on Form 10-Q on May 15, 2014).
10.41	Form of Warrant between the Company and H.C. Wainwright & Co., LLC dated April 9, 2014 (incorporated by reference to Exhibit 4.1 filed with the Company's Current Report on Form 8-K on April 14, 2014).

Exhibit Number	Description
10.42	Form of Warrant between the Company and certain investors (incorporated by reference as Exhibit 4.1 filed with the Company's Current Report on Form 8-K on October 10, 2014.)
10.43	Form of Warrant between the Company and certain investors (incorporated by reference as Exhibit 10.2 filed with the Company's Current Report on Form 8-K on December 29, 2015).
10.44	Form of Warrant between the Company and certain investors (incorporated by reference as Exhibit 10.2 filed with the Company's Current Report on Form 8-K on March 3, 2016).
10.45	Form of Common Stock Purchase Warrant by and between Northwest Biotherapeutics, Inc. and certain purchasers (incorporated by reference as Exhibit 10.1 filed with the Company's Current Report on Form 8-K on July 11, 2016).
10.46	Exchange Agreement, dated as of August 29, 2016, between Cognate BioServices, Inc. and Northwest Biotherapeutics, Inc. (incorporated by reference as Exhibit 10.1 filed with the Company's Current Report on Form 8-K on September 6, 2016).
10.47	Form of Warrant to Purchase Common Stock to Cognate BioServices, Inc. to purchase 4,305,772 shares of Common Stock (incorporated by reference as Exhibit 99.1 filed with the Company's Current Report on Form 8-K on September 6, 2016).
10.48	Letter Agreement, dated August 23, 2016, by and between Northwest Biotherapeutics, Inc. and certain purchasers (incorporated by reference as Exhibit 10.1 filed with the Company's Current Report on Form 8-K/A on September 19, 2016).
10.49	Series E Common Stock Purchase Warrant (incorporated by reference as Exhibit 10.2 filed with the Company's Current Report on Form 8-K/A on September 19, 2016).
10.50	Registration Rights Agreement dated August 22, 2016 (incorporated by reference as Exhibit 10.3 filed with the Company's Current Report on Form 8-K/A on September 19, 2016).
10.51	Engagement Agreement, dated August 21, 2016, by and between Northwest Biotherapeutics, Inc. and H.C. Wainwright & Co., LLC, as placement agent 2016 (incorporated by reference as Exhibit 10.4 filed with the Company's Current Report on Form 8-K/A on September 19, 2016).
10.52	Agreement, dated as of October 13, 2016, between Cognate BioServices, Inc. and Northwest Biotherapeutics, Inc. (incorporated by reference as Exhibit 10.1 filed with the Company's Current Report on Form 8-K on October 19, 2016).
10.53	Omnibus Amendment Agreement dated as of September 22, 2016 between Cognate BioServices, Inc. and Northwest Biotherapeutics, Inc.. (incorporated by reference as Exhibit 10.2 filed with the Company's Current Report on Form 8-K on October 19, 2016).
10.54	Release Agreement dated as of October 13, 2016 between Cognate BioServices, Inc. and Northwest Biotherapeutics, Inc. . (incorporated by reference as Exhibit 10.3 filed with the Company's Current Report on Form 8-K on October 19, 2016).
10.55	Assignment and Assumption Agreement dated as of October 13, 2016 between Cognate BioServices, Inc. and Northwest Biotherapeutics, Inc.. (incorporated by reference as Exhibit 10.4 filed with the Company's Current Report on Form 8-K on October 19, 2016).
10.56	Form of Securities Purchase Agreement, dated March 17, 2017, by and between Northwest Biotherapeutics, Inc. and certain purchasers. (incorporated by reference as Exhibit 10.1 filed with the Company's Current Report on Form 8-K on March 23, 2017).
10.57	Form of Class A Common Stock Purchase Warrant (incorporated by reference as Exhibit 10.2 filed with the Company's Current Report on Form 8-K on March 23, 2017).
10.58	Form of Class B Common Stock Purchase Warrant (incorporated by reference as Exhibit 10.3 filed with the Company's Current Report on Form 8-K on March 23, 2017).
10.59	Form of Class C Common Stock Purchase Warrant (incorporated by reference as Exhibit 10.4 filed with the Company's Current Report on Form 8-K on March 23, 2017).
10.60	Engagement Agreement with Rodman & Renshaw, a unit of H.C. Wainwright & Co., LLC (incorporated by reference as Exhibit 10.5 filed with the Company's Current Report on Form 8-K on March 23, 2017).

Exhibit Number	Description
10.61	Securities Exchange Agreement (incorporated by reference as Exhibit 10.1 filed with the Company's Current Report on Form 8-K on May 31, 2017).
10.62	Securities Exchange Agreement (incorporated by reference as Exhibit 10.1 filed with the Company's Current Report on Form 8-K on June 21, 2017).
10.63	Note Purchase Agreement (incorporated by reference as Exhibit 10.2 filed with the Company's Current Report on Form 8-K on June 21, 2017).
10.64	Form of Warrant Repricing Letter Agreement dated August 7, 2017 by and between Northwest Biotherapeutics, Inc. and a certain institutional investor (incorporated by reference as Exhibit 10.1 filed with the Company's Current Report on Form 8-K on August 7, 2017).
10.65	Form of Series A Common Stock Purchase Warrant (incorporated by reference as Exhibit 10.2 filed with the Company's Current Report on Form 8-K on August 7, 2017).
10.66	Form of Securities Purchase Agreement, dated September 20, 2017, by and between Northwest Biotherapeutics, Inc. and certain institutional investors (incorporated by reference as Exhibit 10.1 filed with the Company's Current Report on Form 8-K on September 22, 2017).
10.67	Form of Class A Common Stock Purchase Warrant (incorporated by reference as Exhibit 10.2 filed with the Company's Current Report on Form 8-K on September 22, 2017).
10.68	Engagement Agreement with Rodman & Renshaw, a unit of H.C. Wainwright & Co., LLC (incorporated by reference as Exhibit 10.3 filed with the Company's Current Report on Form 8-K on September 22, 2017).
10.69	Sawton Lease, dated October 10, 2017.
10.70	Form of Class D-1 Common Stock Purchase Warrant (incorporated by reference as Exhibit 10.1 filed with the Company's Current Report on Form 8-K on December 7, 2017).
10.71	Form of Voting Agreement (incorporated by reference as Exhibit 10.2 filed with the Company's Current Report on Form 8-K on December 7, 2017).
10.72	Form of Subscription Agreement (incorporated by reference as Exhibit 10.3 filed with the Company's Current Report on Form 8-K on December 7, 2017).
21.1	Subsidiaries of the Registrant
23.1	Independent Registered Public Accounting Firm's Consent
31.1	Certification of the Principal Executive and Principal Financial and Accounting Officer pursuant to Section 302 of the Sarbanes Oxley Act of 2002
32.1	Certification of the Principal Executive and Principal Financial and Accounting Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	XBRL Instance Document.
101.SCH	XBRL Schema Document.
101.CAL	XBRL Calculation Linkbase Document.
101.DEF	XBRL Definition Linkbase Document.
101.LAB	XBRL Label Linkbase Document.
101.PRE	XBRL Presentation Linkbase Document.

* Confidential information in this exhibit has been omitted and filed separately with the SEC pursuant to a confidential treatment request.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

NORTHWEST BIOTHERAPEUTICS, INC.
(Registrant)

Date: April 17, 2018

By: /s/ Linda F. Powers
Linda F. Powers,
Chief Executive Officer (Principal Executive Officer and Principal Financial and Accounting Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this Annual Report on Form 10-K 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/ Linda F. Powers Linda F. Powers	Chief Executive Officer (Principal Executive Officer and Principal Financial and Accounting Officer))	April 17, 2018
/s/ Alton L. Boynton Alton L. Boynton	Director	April 17, 2018
/s/ Navid Malik Dr. Navid Malik	Director	April 17, 2018
/s/ Jerry Jasinowski Jerry Jasinowski	Director	April 17, 2018
/s/ J. Cofer Black J. Cofer Black	Director	April 17, 2018

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Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

NORTHWEST BIOTHERAPEUTICS, INC.

INDEX TO THE CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and Board of Directors of
Northwest Biotherapeutics, Inc. and Subsidiaries

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Northwest Biotherapeutics, Inc. and Subsidiaries (the "Company") as of December 31, 2017 and 2016, the related consolidated statements of operations, comprehensive loss, changes in stockholders' equity and cash flows for each of the two years in the period ended December 31, 2017, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2017, in conformity with accounting principles generally accepted in the United States of America.

Explanatory Paragraph – Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As more fully described in Note 2, the Company has recurring operating losses, net operating cash flow deficits, and an accumulated deficit. 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 also described in Note 2. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting 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.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Marcum LLP

/s/ Marcum LLP

We have served as the Company's auditor since 2013.

New York, NY
April 17, 2018

NORTHWEST BIOTHERAPEUTICS, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share data)

	December 31, 2017	December 31, 2016
ASSETS		
Current assets:		
Cash and cash equivalents	$ 117	$ 6,186
Restricted cash - interest payments held in escrow	-	685
Prepaid expenses and other current assets	1,285	1,013
Total current assets	1,402	7,884
Non-current assets:		
Property, plant and equipment, net	169	315
Construction in progress (property in the United Kingdom), net	47,319	44,559
Other assets	17	148
Total non-current assets	47,505	45,022
TOTAL ASSETS	**$ 48,907**	**$ 52,906**
LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT)		
Current liabilities:		
Accounts payable and accrued expenses	$ 13,015	$ 13,239
Accounts payable and accrued expenses to related parties	5,385	23,393
Convertible notes, net	135	10,960
Notes payable, net	7,122	2,450
Notes payable to related party	1,121	310
Share settled debt, at fair value (in default)	3,308	5,200
Environmental remediation liability	6,200	6,200
Warrant liability	40,171	4,862
Mortgage loan, net	11,226	9,791
Total current liabilities	87,683	76,405
Non-current liabilities:		
Note payable, net of current portion, net	2,507	3,000
Convertible notes payable, net of current portion, net	6,010	-
Total non-current liabilities	8,517	3,000
Total liabilities	96,200	79,405
Preferred stock ($0.001 par value); 40,000,000 shares authorized as of December 31, 2017 and 2016, respectively		
Convertible Series A, 15,000,000 shares designated - 9.7 million and 0 shares issued and outstanding at December 31, 2017 and 2016, respectively; aggregate liquidation preference of $17,831	7,439	-
Convertible Series B, 15,000,000 shares designated - 5.6 million and 0 shares issued and outstanding at December 31, 2017 and 2016, respectively; aggregate liquidation preference of $13,104	12,601	-
COMMITMENTS AND CONTINGENCIES		
Stockholders' equity (deficit):		
Common stock ($0.001 par value); 450,000,000 shares authorized; 328.9 million and 157.0 million shares issued and outstanding as of December 31, 2017 and 2016, respectively	329	157
Additional paid-in capital	721,554	686,972
Accumulated deficit	(788,619)	(715,476)
Accumulated other comprehensive income (loss)	(597)	1,848
Total stockholders' equity (deficit)	(67,333)	(26,499)
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT) AND TEMPORARY EQUITY	**$ 48,907**	**$ 52,906**

See accompanying notes to the consolidated financial statements

NORTHWEST BIOTHERAPEUTICS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)

	For the years ended December 31,	
	2017	**2016**
Revenues:		
Research and other	$ 336	$ 623
Total revenues	336	623
Operating costs and expenses:		
Research and development	33,515	60,081
General and administrative	12,458	10,867
Legal expenses	9,041	8,941
Total operating costs and expenses	55,014	79,889
Loss from operations	(54,678)	(79,266)
Other income (expense):		
Loss from assumption of Cognate BioServices debt	-	(5,680)
Inducement loss	(2,297)	(1,457)
Change in fair value of derivative liabilities	(2,578)	17,891
Net loss from extinguishment of debt	(12,569)	(1,152)
Interest expense	(5,545)	(3,818)
Foreign currency transaction gain (loss)	4,524	(6,732)
Net loss	$ (73,143)	$ (80,214)
Deemed dividend related to warrant modification	-	(5,647)
Deemed dividend on convertible preferred stock	(1,266)	-
Net loss applicable to common stockholders	$ (74,409)	$ (85,861)
Net loss per share applicable to common stockholders - basic and diluted	$ (0.31)	$ (0.77)
Weighted average shares used in computing basic and diluted loss per share	242,849	111,078

See accompanying notes to the consolidated financial statements

NORTHWEST BIOTHERAPEUTICS, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	For the years ended December 31,	
	2017	**2016**
Net loss	$ (73,143)	$ (80,214)
Other comprehensive income (loss)		
Foreign currency translation adjustment	(2,445)	1,971
Total comprehensive loss	$ (75,588)	$ (78,243)

See accompanying notes to the consolidated financial statements

NORTHWEST BIOTHERAPEUTICS, INC.
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY (DEFICIT)
(in thousands)

	Common Stock		Additional Paid-in	Accumulated	Cumulative Translation	Total Stockholders' Equity
	Shares	Par value	Capital	Deficit	Adjustment	(Deficit)
Balance at January 1, 2016	**95,858**	**$ 96**	**$ 630,613**	**$ (635,262)**	**$ (123)**	**$ (4,676)**
Issuance of common stock and warrants for cash in a registered direct offering	41,857	42	19,945	-	-	19,987
Offering cost related to registered direct offering	-	-	(1,877)	-	-	(1,877)
Issuance of common stock and warrants for cash in private offering	6,377	7	2,199	-	-	2,206
Warrants exercised for cash	15,357	15	8,051	-	-	8,066
Offering costs related to warrants exercise	-	-	(795)	-	-	(795)
Modification on warrant exercise price	-	-	5,647	-	-	5,647
Deemed dividend related to warrant exercise price modification	-	-	(5,647)	-	-	(5,647)
Issuance of common stock for accounts payable conversion	78	-	28	-	-	28
Issuance of common stock and warrants for conversion of debt and accrued interest	6,035	6	3,015	-	-	3,021
Common stock issued as compensation	250	-	127	-	-	127
Return of common stock and warrants from Cognate	(8,052)	(8)	8	-	-	-
Extinguishment of shares payable related to Cognate	-	-	22,539	-	-	22,539
Extinguishment of derivative liabilities related to Cognate	-	-	10,131	-	-	10,131
Shares payment due to Cognate BioServices	(732)	(1)	(8,884)	-	-	(8,885)
Reclassification of warrant liabilities related to warrants exercised for cash	-	-	1,872	-	-	1,872
Net loss	-	-	-	(80,214)	-	(80,214)
Cumulative translation adjustment	-	-	-	-	1,971	1,971
Balance at December 31, 2016	**157,028**	**157**	**686,972**	**(715,476)**	**1,848**	**(26,499)**
Beneficial conversion feature of Series A convertible preferred stock	-	-	276	-	-	276
Deemed dividends related to immediate accretion of beneficial conversion feature of Series A convertible preferred stock	-	-	(276)	-	-	(276)
Beneficial conversion feature of Series B convertible preferred stock	-	-	366	-	-	366
Deemed dividends related to immediate accretion of beneficial conversion feature of Series A convertible preferred stock	-	-	(366)	-	-	(366)
Issuance of common stock for conversion of Series A convertible preferred stock	4,000	4	676	-	-	680
Deemed dividends on conversion of Series A convertible preferred stock to common stock	-	-	(624)	-	-	(624)
Issuance of common stock and warrants for cash in a registered direct offering (net of $7.0 million warrant liability)	28,979	29	2,511	-	-	2,540
Offering cost related to registered direct offering	-	-	(856)	-	-	(856)
Issuance of common stock and warrants for cash in private offering (net of $1.1 million warrant liability)	11,951	12	971	-	-	983
Warrants exercised for cash	23,758	24	2,842	-	-	2,866
Offering costs related to warrants exercise	-	-	(229)	-	-	(229)
Reclassification of warrant liabilities related to warrants exercised for cash	-	-	2,162	-	-	2,162
Cashless warrants exercise	6,940	7	(7)	-	-	-
Reclassification of warrant liabilities related to cashless warrants exercise	-	-	3,054	-	-	3,054
Forgiveness of certain payables to Cognate BioServices, Inc.	-	-	3,750	-	-	3,750
Conversion of share settled debt into common stock	11,500	11	1,881	-	-	1,892
Issuance of common stock and warrants for conversion of debt and accrued interest	76,073	76	15,564	-	-	15,640
Common stock issued for extinguishment of 2014 senior convertible notes	7,090	7	2,047	-	-	2,054
Stock-based compensation	1,538	2	840	-	-	842
Net loss	-	-	-	(73,143)	-	(73,143)
Cumulative translation adjustment	-	-	-	-	(2,445)	(2,445)
Balance at December 31, 2017	**328,857**	**$ 329**	**$ 721,554**	**$ (788,619)**	**$ (597)**	**$ (67,333)**

See accompanying notes to the consolidated financial statements

NORTHWEST BIOTHERAPEUTICS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

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	For the years ended December 31,	
	2017	**2016**
Cash Flows from Operating Activities:		
Net Loss	$ (73,143)	$ (80,214)
Reconciliation of net loss to net cash used in operating activities:		
Depreciation and amortization	439	189
Amortization of debt discount	1,516	850
Non-cash interest expense	407	-
Change in fair value of derivatives	2,578	(17,891)
Inducement loss	2,297	1,457
Loss from extinguishment of debt	12,119	1,152
Loss from assumption of Cognate BioServices share settled debt (in default)	-	5,680
Non-cash research and development cost related to Cognate settlement	8,395	-
Stock-based compensation	842	127
Stock issued to Cognate BioServices under Cognate Agreements	-	13,654
Subtotal of non-cash charges	28,593	5,218
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(281)	366
Accounts payable and accrued expenses	501	1,037
Related party accounts payable and accrued expenses	7,704	17,899
Other non-current assets	131	42
Net cash used in operating activities	(36,495)	(55,652)
Cash Flows from Investing Activities:		
Purchase of property, plant and equipment	(8)	(4,939)
Refund of leasehold improvement related to UK construction	220	-
Net cash provided by (used in) investing activities	212	(4,939)
Cash Flows from Financing Activities:		
Proceeds from issuance of Series A convertible preferred stock and warrants, net	11,293	-
Proceeds from issuance of Series B convertible preferred stock and warrants, net	869	-
Proceeds from issuance of common stock and warrants in a registered direct offering	9,509	19,987
Offering cost related to registered direct offering	(856)	(1,077)
Proceeds from issuance of common stock and warrants in private offering	2,117	6,417
Proceeds from exercise of warrants	2,866	8,066
Offering cost related to warrants exercise	(229)	(795)
Proceeds from issuance of notes payable, net	9,564	5,450
Proceeds from issuance of notes payable to related party	2,805	260
Repayment of notes payable to related parties	(1,994)	-
Proceeds from issuance of convertible notes payable, net	1,604	-
Repayment of convertible notes payable	(3,258)	-
Net cash provided by financing activities	34,290	38,308
Effect of exchange rate changes on cash and cash equivalents	(4,761)	6,106
Net decrease in cash, cash equivalents and restricted cash	(6,754)	(16,177)
Cash, cash equivalents and restricted cash, beginning of the year	6,871	23,048
Cash, cash equivalents and restricted cash, end of the year	$ 117	$ 6,871
Supplemental disclosure of cash flow information		
Interest payments on mortgage loan	$ (1,283)	$ (1,784)
Interest payments on senior convertible note	$ (485)	$ (550)
Interest payments on notes payable to related party	$ (47)	$ -

See accompanying notes to the consolidated financial statements

NORTHWEST BIOTHERAPEUTICS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	For the years ended December 31,	
	2017	**2016**
Supplemental schedule of non-cash investing and financing activities:		
Beneficial conversion feature of Series A convertible preferred stock	$ 276	$ -
Deemed dividends related to immediate accretion of beneficial conversion feature of Series A convertible stock	$ 276	$ -
Beneficial conversion feature of Series B convertible preferred stock	$ 366	$ -
Deemed dividends related to immediate accretion of beneficial conversion feature of Series B convertible stock	$ 366	$ -
Issuance of common stock for conversion of Series A convertible preferred stock	$ 680	$ -
Deemed dividends on conversion of Series A convertible preferred stock to common stock	$ 624	$ -
Issuance of Series A convertible preferred stock and warrants in exchange for existing warrants	$ 1,090	$ -
Conversion of share settled debt into common stock	$ 1,892	$ -
Issuance of common stock and warrants for conversion of debt and accrued interest	$ 11,979	$ -
Exchange existing short term notes payable and accrued interest to new notes payable	$ 2,410	$ -
Exchange 2014 Senior Convertible Notes and accrued interest for secured convertible note	$ 5,175	$ -
Embedded conversion features with issuance of secured convertible notes	$ 1,826	$ -
Reclassification of warrant liabilities related to warrants exercised for cash	$ 2,162	$ 825
Reclassification of warrant liabilities related to cashless warrant exercises	$ 3,054	$ -
Cashless warrants exercise	$ 7	$ -
Issuance of warrants in conjunction with note payable	$ 139	$ -
Conversion of certain payables to Cognate BioServices, Inc. to Series A and Series B convertible preferred stock and warrants	$ 21,963	$ -
Forgiveness of certain payables to Cognate BioServices, Inc.	$ 3,750	$ -
Return of common stock and warrants from Cognate BioServices, Inc.	$ -	$ 8
Extinguishment of shares payable related to Cognate BioServices, Inc.	$ -	$ 22,539
Extinguishment of derivative liabilities related to Cognate BioServices, Inc.	$ -	$ 10,131
Offering cost payable	$ -	$ 800
Accrued renewal fee incurred from mortgage loan	$ 521	$ 488
Deemed dividend related to modification of warrant	$ -	$ 5,647
Issuance of debt with debt discount	$ -	$ 310
Issuance of common stock for accounts payable conversion	$ -	$ 28
Issuance of common stock for conversion of accrued interest	$ -	$ 1,869

See accompanying notes to the consolidated financial statements

1. Organization and Description of Business

Northwest Biotherapeutics, Inc. and its wholly owned subsidiaries NW Bio Gmbh, and Aracaris Capital, Ltd (collectively, the "Company", "we", "us" and "our") were organized to discover and develop innovative immunotherapies for cancer.

The Company is developing an experimental dendritic cell vaccine using its platform technology known as DCVax. DCVax is currently being tested for use in the treatment of certain types of cancers.

Cognate BioServices, Inc. ("Cognate BioServices"), which is a company related by common ownership (Note 9), provides the Company with mission critical contract manufacturing services, research and development services, distribution and logistics, and related services, in compliance with the Company's specifications and the applicable regulatory requirements for clinical grade cellular products. The Company and Cognate BioServices are currently parties to a series of contracts providing for these services as more fully described below. The Company is dependent on Cognate BioServices to provide the manufacturing services, and any interruption of such services could potentially have a material adverse effect on the Company's ability to proceed with its clinical trials. Cognate BioServices' manufacturing facility for clinical-grade cellular products is located in Memphis, Tennessee. In addition, a former Cognate affiliate in the UK (which was formerly part of Cognate BioServices, and is now known as Advent BioServices, a related party relationship to the Company) is preparing for production of DCVax-L products there. The Company and Advent BioServices are in the process of developing contract arrangements for manufacturing and related services for the U.K. and Europe.

On February 20, 2018, Cognate BioServices transferred 2.9 million shares of Series A convertible preferred stock and 29.4 million warrants with exercise price of $0.22 to Linda Powers, the Company's chief executive officer and president to partially repay an outstanding debt owed by Cognate to Ms. Powers, as Cognate was unable to repay any of the debt in cash. Cognate, however, remains a related party due to its ownership of common and preferred stock along with common stock purchase warrants.

Although there are many contract manufacturers for small molecule drugs and for biologics, there are only a few contract manufacturers in the U.S., and even fewer in Europe, that specialize in producing living cell products and that have a track record of success with regulatory authorities. The manufacturing of living cell products is highly specialized and entirely different than production of biologics: the physical facilities and equipment are different, the types of personnel and skill sets are different, and the processes are different. The regulatory requirements relating to manufacturing and cellular products are especially challenging and are one of the most frequent reasons for the development of a company's cellular products to be put on clinical hold (i.e., stopped by regulatory authorities).

In addition, the Company's programs require dedicated capacity in these specialized manufacturing facilities. The Company's products are fully personalized and not made in standardized batches: the Company's products are made on demand, patient by patient, on an as needed basis.

2. Liquidity, Financial Condition and Management Plans

The Company used approximately $36.5 million of cash in its operating activities for the year ended December 31, 2017. Management believes that the Company has access to capital resources through the sale of equity and debt financing arrangements. Notwithstanding, the Company has not secured any commitments for new financing for this specific purpose at this time.

During the year ended December 31, 2017, the Company raised approximately $39.5 million in equity and debt securities to fund its operations, and raised an additional $5.0 million from a third party who retired the 2014 Notes on the Company's behalf. As expected for a company that is pre-revenue, the Company incurred a net loss of $73.1 million for the year ended December 31, 2017. The Company had current assets of $1.4 million and a working capital deficit of approximately $86.3 million at December 31, 2017. The Company owed an aggregate of $5.4 million of trade liabilities and accrued expenses to certain related parties as of December 31, 2017 (after waiver by such related parties of $3.75 million related to certain payables, which was owed to them by the Company).

The Company has not yet generated any material revenue from the sale of its products and is subject to all of the risks and uncertainties that are typically faced by biotechnology companies that devote substantially all of their efforts to R&D and clinical trials and do not yet have commercial products. The Company expects to continue incurring losses for the foreseeable future. The Company's existing liquidity is not sufficient to fund its operations, anticipated capital expenditures, working capital and other financing requirements until the Company reaches significant revenues. Until that time, the Company will need to obtain additional equity and/or debt financing, especially if the Company experiences downturns in its business that are more severe or longer than anticipated, or if the Company experiences significant increases in expense levels resulting from being a publicly-traded company or from expansion of operations. If the Company attempts to obtain additional equity or debt financing, the Company cannot assume that such financing will be available to the Company on favorable terms, or at all.

Because of recurring operating losses, net operating cash flow deficits, and an accumulated deficit, there is substantial doubt about the Company's ability to continue as a going concern within one year from the date of this filing. The consolidated financial statements have been prepared assuming that the Company will continue as a going concern, and do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets, or the amounts and classification of liabilities that may result from the outcome of this uncertainty.

3. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying consolidated financial statements of the Company were prepared in accordance with generally accepted accounting principles in the U.S. ("U.S. GAAP") and include the assets, liabilities, revenues and expenses of the wholly owned subsidiaries in Germany and the United Kingdom. All intercompany transactions and accounts have been eliminated in consolidation.

Consolidation

The Company's policy is to consolidate all entities in which it can vote a majority of the outstanding voting stock. In addition, the Company consolidates entities which meet the definition of a variable interest entity (VIE) for which the Company is the primary beneficiary, if any. The primary beneficiary is the party who has the power to direct the activities of a VIE that most significantly impact the entity's economic performance and who has an obligation to absorb losses of the entity or a right to receive benefits from the entity that could potentially be significant to the VIE.

Cash and Cash Equivalents

Cash consists of funds deposited in checking accounts. Accounts at each institution are insured by the Federal Deposit Insurance Corporation ("FDIC") up to $250,000. The management believes that no material credit or market risk exposure exists due to the high credit quality of the institutions that have checking accounts of the Company's funds. The Company has not incurred any losses on such accounts.

Restricted Cash

The Company records cash held in an escrow account to secure certain debt interest obligations as restricted cash. As of December 31, 2017 and 2016, the Company had $0 and $0.7 million of restricted cash, respectively.

Property, Plant and Equipment

Property and equipment are stated at cost. Depreciation and amortization are provided for using straight-line methods, in amounts sufficient to charge the cost of depreciable assets to operations over their estimated service lives. Repairs and maintenance costs are charged to operations as incurred. For more details see Note 6.

The Company assesses its long-lived assets for impairment whenever facts and circumstances indicate that the carrying amounts may not be fully recoverable. To analyze recoverability, the Company projects undiscounted net future cash flows over the remaining lives of such assets. If these projected undiscounted net future cash flows are less than the carrying amounts, an impairment loss would be recognized, resulting in a write-down of the assets with a corresponding charge to earnings. The impairment loss is measured based upon the difference between the carrying amounts and the fair values of the assets. Assets to be disposed of are reported at the lower of the carrying amounts or fair value less cost to sell. Management determines fair value using the discounted cash flow method or other accepted valuation techniques.

Accordingly, during the years ended December 31, 2017 and 2016, an assessment was undertaken to determine whether the assets of the Company might be impaired. From time to time the Company asks its real estate experts in the UK to provide a valuation of its UK property. The Company's estimate of undiscounted cash flows indicated that such carrying amounts were expected to be recovered, and therefore there was no impairment as of December 31, 2017 and 2016. Of course, it is possible that the estimate of undiscounted cash flows could change at some time in the future, resulting in a need at that time to write down such assets to fair value.

Use of Estimates

In preparing consolidated financial statements in conformity with U.S. GAAP, management is required 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, as well as the reported amounts of expenses during the reporting period. Due to inherent uncertainty involved in making estimates, actual results reported in future periods may be affected by changes in these estimates. On an ongoing basis, the Company evaluates its estimates and assumptions. These estimates and assumptions include valuing equity securities in share-based payment arrangements, estimating the fair value of financial instruments recorded as derivative liabilities, useful lives of depreciable assets and whether impairment charges may apply, and the fair value of environmental remediation liabilities.

Fair Value of Financial Instruments

ASC 820, Fair Value Measurements, provides guidance on the development and disclosure of fair value measurements. Under this accounting guidance, fair value is defined as an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or a liability.

The accounting guidance classifies fair value measurements in one of the following three categories for disclosure purposes:

Level 1: Quoted prices in active markets for identical assets or liabilities.

Level 2: Inputs other than Level 1 prices for similar assets or liabilities that are directly or indirectly observable in the marketplace.

Level 3: Unobservable inputs which are supported by little or no market activity and values determined using pricing models, discounted cash flow methodologies, or similar techniques, as well as instruments for which the determination of fair value requires significant judgment or estimation.

The carrying amount of the Company’s financial instruments, including cash and cash equivalents and accounts payable approximate their fair values. As of December 31, 2017, the carrying amount of the notes payable approximate fair value as its interest rate approximates current market rates.

Warrant Liability

The Company accounts for certain common stock warrants outstanding as a liability at fair value and adjusts the instruments to fair value at each reporting period. This liability is subject to re-measurement at each balance sheet date until exercised, and any change in fair value is recognized in the Company's consolidated statements of operations. The fair value of the warrants issued by the Company has been estimated using Monte Carlo simulation and or a Black Scholes model.

Environmental Remediation Liabilities

The Company records environmental remediation liabilities for properties acquired. The environmental remediation liabilities are initially recorded at fair value. The liability is reduced for actual costs incurred in connection with the clean-up activities for each property. Upon completion of the clean-up, the environmental remediation liability is adjusted to equal the fair value of the remaining operation, maintenance and monitoring activities to be performed for the property. The reduction in the liability resulting from the completion of the clean-up is included in other income (expense). As of December 31, 2017, the Company estimates that the total environmental remediation costs associated with the purchase of the UK Facility will amount to approximately $6.2 million. Contamination clean-up costs that improve the property from its original acquisition state are capitalized as part of the property’s overall development costs. The Company engaged a third-party specialist to conduct certain surveys of the condition of the property which included, among other things, a preliminary analysis of potential environmental remediation exposures. The Company determined, based on information contained in the specialist’s report, that it would be required to estimate the fair value of an unconditional obligation to remediate specific ground contamination at an estimated fair value of approximately $6.2 million. The Company computed its preliminary estimate of the fair value of this obligation using a probability weighted approach that measures the likelihood of the following two potential outcomes: (i) a higher probability requirement of erecting a protective barrier around the affected area at an estimated cost of approximately $4.6 million, and (ii) a lower probability requirement of having to excavate the affected area at an estimated cost of approximately $33.4 million. The Company’s estimate is preliminary and therefore subject to change as further studies are conducted, and as additional facts come to the Company’s attention. Environmental remediation efforts are complex, technical and subject to various uncertainties. Accordingly, it is at least reasonably possible that any changes in the Company’s estimate could materially differ from the management’s preliminary assessment discussed herein.

Foreign Currency Translation and Transactions

The Company has operations in Germany and the United Kingdom in addition to the U.S. The Company translated its assets and liabilities into U.S. dollars using end of period exchange rates and revenues and expenses are translated into U.S. dollars using weighted average rates. Foreign currency translation adjustments are reported as a separate component of accumulated other comprehensive income (loss) within stockholders' equity (deficit).

Comprehensive Loss

The Company reports comprehensive loss and its components in its consolidated financial statements. Comprehensive loss consists of net loss and foreign currency translation adjustments, affecting stockholders' equity (deficit) that, under U.S, GAAP, is excluded from net loss.

Revenue Recognition

The Company recognizes revenue in accordance with the terms stipulated under the patient service contract. In various situations, the Company receives certain payments for DCVax®-L for patient treatment. These payments are non-refundable, and are not dependent on the Company's ongoing future performance. Due to potential collectability issues with patients, the Company has adopted a policy of recognizing these payments as revenue when received.

Accrued Outsourcing Costs

Substantial portions of our preclinical studies and clinical trials are performed by third-party laboratories, medical centers, contract research organizations and other vendors (collectively "CROs"). These CROs generally bill monthly or quarterly for services performed, or bill based upon milestones achieved. For clinical studies, expenses are accrued when services are performed. The Company monitors patient enrollment, the progress of clinical studies and related activities through internal reviews of data that is tracked by the CROs under contractual arrangements, correspondence with the CROs and visits to clinical sites.

Research and Development Costs

Research and development costs are charged to operations as incurred and consist primarily of clinical trial costs, related party manufacturing costs, consulting costs, contract research and development costs, clinical site costs and compensation costs.

Income Taxes

The Company recognizes income taxes on an accrual basis based on tax positions taken or expected to be taken in its tax returns. A tax position is defined as a position in a previously filed tax return or a position expected to be taken in a future tax filing that is reflected in measuring current or deferred income tax assets and liabilities. Tax positions are recognized only when it is more likely than not (i.e., likelihood of greater than 50%), based on technical merits, that the position would be sustained upon examination by taxing authorities. Tax positions that meet the more likely than not threshold are measured using a probability-weighted approach as the largest amount of tax benefit that is greater than 50% likely of being realized upon settlement. Income taxes are accounted for using an asset and liability approach that requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in our financial statements or tax returns. A valuation allowance is established to reduce deferred tax assets if all, or some portion, of such assets will more than likely not be realized. Should they occur, our policy is to classify interest and penalties related to tax positions as income tax expense. Since our inception, no such interest or penalties have been incurred, however prior to 1998 the Company was a limited liability company and the Company's tax losses and credits generally flowed directly to the members.

On December 22, 2017, legislation commonly known as the Tax Cuts and Jobs Act, or the Tax Act, was signed in to law. The legislation significantly changes U.S. tax law by, among other things, lowering corporate income tax rates, implementing a territorial tax system and imposing a repatriation tax on deemed repatriated earnings of foreign subsidiaries. The Tax Act permanently reduces the U.S. corporate income tax rate to 21% from the existing applicable rate of 34%, effective January 1, 2018. As a result, the Company has recorded a decrease to its deferred tax assets of $78.3 million and to valuation allowance of $78.3 million for the year ended December 31, 2017. The Tax Act also permits an indefinite carry forward of net operating losses generated in taxable years ending after December 31, 2017, subject to a utilization limitation of 80% of taxable income. See Note 13.

On December 22, 2017, the SEC staff issued Staff Accounting Bulletin No. 118 ("SAB 118") to address the application of GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Tax Reform Act. The Company has recognized the provisional tax impacts related to the revaluation of deferred tax assets and liabilities and included these amounts in its consolidated financial statements for the year ended December 31, 2017. The ultimate impact may differ from these provisional amounts, possibly materially, due to, among other things, additional analysis, changes in interpretations and assumptions the Company has made, additional regulatory guidance that may be issued, and actions the Company may take as a result of the Tax Act. The accounting is expected to be complete when the 2017 U.S. corporate income tax return is filed in 2018.

Stock Based Compensation

The Company expenses stock-based compensation to employees and Board members over the requisite service period based on the estimated grant-date fair value of the awards. Stock-based awards with graded-vesting schedules are recognized on a straight-line basis over the requisite service period for each separately vesting portion of the award. For stock-based compensation awards to non-employees, the Company remeasures the fair value of the non-employee awards at each reporting period prior to vesting and finally at the vesting date of the award. Changes in the estimated fair value of these non-employee awards are recognized as compensation expense in the period of change.

The Company estimates the fair value of stock option grants using the Black-Scholes option pricing model and the assumptions used in calculating the fair value of stock-based awards represent management's best estimates and involve inherent uncertainties and the application of management's judgment.

Expected Term — The expected term of options represents the period that the Company's stock-based awards are expected to be outstanding based on the simplified method, which is the half-life from vesting to the end of its contractual term.

Expected Volatility — The Company computes stock price volatility over expected terms based on its historical common stock trading prices.

Risk-Free Interest Rate — The Company bases the risk-free interest rate on the implied yield available on U. S. Treasury zero-coupon issues with an equivalent remaining term.

Expected Dividend — The Company has never declared or paid any cash dividends on its common shares and does not plan to pay cash dividends in the foreseeable future, and, therefore, uses an expected dividend yield of zero in its valuation models.

The fair value of restricted stock units is determined based on the number of shares granted and the quoted market price of the Company's common stock on the date of grant. The fair value of restricted stock units with performance conditions deemed probable of being achieved and vesting are amortized to expense over the requisite service period using the straight-line method of expense recognition.

Effective on January 1, 2017, the Company elected to account for forfeited awards as they occur as permitted by Accounting Standards Update ("ASU") 2016-09. Ultimately, the actual expenses recognized over the vesting period will be for those shares that vested. Prior to making this election, the Company estimated a forfeiture rate for awards at 0%, as the Company did not have a significant history of forfeitures.

Debt Extinguishment

The Company accounts for the income or loss from extinguishment of debt by comparing the difference between the reacquisition price and the net carrying amount of the debt being extinguished and recognizes this as gain or loss when the debt is extinguished. The gain or loss from debt extinguishment is recorded in the consolidated statements of operations under "other income (expense)" as loss from extinguishment of convertible debt.

Share-settled Debt

Share-settled debt may settle by providing the holder with a variable number of shares with an aggregate fair value equaling the debt principal outstanding. (In some cases, a discount to the fair value of the share price may be used to determine the number of shares to be delivered, resulting in settlement at a premium.) Share-settled debt was analyzed to determine that the share settled debt does not contain a beneficial conversion feature or contingent beneficial conversion feature. Share-settled debt is recorded at fair value.

Convertible Preferred Stock

Preferred shares subject to mandatory redemption are classified as liability instruments and are measured at fair value. The Company classifies conditionally redeemable preferred shares, which includes preferred shares that feature redemption rights that are either within the control of the holder or subject to redemption upon the occurrence of uncertain events not solely within the Company's control, as temporary equity ('mezzanine') until such time as the conditions are removed or lapse.

Sequencing

As of October 13, 2016, the Company adopted a sequencing policy whereby all future instruments may be classified as a derivative liability with the exception of instruments related to share-based compensation issued to employees or directors.

Loss per Share

Basic loss per share is computed on the basis of the weighted average number of shares outstanding for the reporting period. Diluted loss per share is computed on the basis of the weighted average number of common shares plus dilutive potential common shares outstanding using the treasury stock method. Any potentially dilutive securities are anti-dilutive due to the Company's net losses. For the years presented, there is no difference between the basic and diluted net loss per share.

Segments

The Company operates in one reportable segment and, accordingly, no segment disclosures have been presented herein.

Adoption of Recent Accounting Pronouncements

Compensation-Stock Compensation

In March 2016, the Financial Accounting Standards Board (the "FASB") issued ASU No. 2016-09, *Compensation-Stock Compensation (Topic 718), Improvements to Employee Share-Based Payment Accounting*. Under ASU No. 2016-09, companies will no longer record excess tax benefits and certain tax deficiencies in additional paid-in capital ("APIC"). Instead, they will record all excess tax benefits and tax deficiencies as income tax expense or benefit in the income statement and the APIC pools will be eliminated. In addition, ASU No. 2016-09 eliminates the requirement that excess tax benefits be realized before companies can recognize them. ASU No. 2016-09 also requires companies to present excess tax benefits as an operating activity on the statement of cash flows rather than as a financing activity. Furthermore, ASU No. 2016-09 will increase the amount an employer can withhold to cover income taxes on awards and still qualify for the exception to liability classification for shares used to satisfy the employer's statutory income tax withholding obligation. An employer with a statutory income tax withholding obligation will now be allowed to withhold shares with a fair value up to the amount of taxes owed using the maximum statutory tax rate in the employee's applicable jurisdiction(s). ASU No. 2016-09 requires a company to classify the cash paid to a tax authority when shares are withheld to satisfy its statutory income tax withholding obligation as a financing activity on the statement of cash flows. Under current U.S. GAAP, it was not specified how these cash flows should be classified. In addition, companies will now have to elect whether to account for forfeitures on share-based payments by (1) recognizing forfeitures of awards as they occur or (2) estimating the number of awards expected to be forfeited and adjusting the estimate when it is likely to change, as is currently required. These aspects of ASU 2016-09 are effective for reporting periods beginning after December 15, 2016, with early adoption permitted provided that all of the guidance is adopted in the same period. The Company's adoption of ASU No. 2016-09 on January 1, 2017 did not have a material impact on its consolidated financial statements and related disclosures. In accordance with the adoption of ASU No. 2016-09, the Company will record forfeitures, if any, when such forfeitures occur.

Recognition and Measurement of Financial Assets and Financial Liabilities

In January 2016, FASB issued ASU No. 2016-01, *Recognition and Measurement of Financial Assets and Financial Liabilities*. ASU 2016-01 requires equity investments to be measured at fair value with changes in fair value recognized in net income; simplifies the impairment assessment of equity investments without readily determinable fair values by requiring a qualitative assessment to identify impairment; eliminates the requirement for public business entities to disclose the method(s) and significant assumptions used to estimate the fair value that is required to be disclosed for financial instruments measured at amortized cost on the balance sheet; requires public business entities to use the exit price notion when measuring the fair value of financial instruments for disclosure purposes; requires an entity to present separately in other comprehensive income the portion of the total change in the fair value of a liability resulting from a change in the instrument-specific credit risk when the entity has elected to measure the liability at fair value in accordance with the fair value option for financial instruments; requires separate presentation of financial assets and financial liabilities by measurement category and form of financial assets on the balance sheet or the accompanying notes to the financial statements; and clarifies that an entity should evaluate the need for a valuation allowance on a deferred tax asset related to available-for-sale securities in combination with the entity's other deferred tax assets. ASU 2016-01 will be effective for financial statements issued for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years. The Company has adopted this guidance during the quarter ended March 31, 2018. The adoption of this guidance did not have a significant impact on the operating results when adopted.

Statement of Cash Flows

In August 2016, the FASB issued ASU No. 2016-15 Statement of Cash Flows - Classification of Certain Cash Receipts and Cash Payments, which addresses specific cash flow classification issues where there is currently diversity in practice including debt prepayment and proceeds from the settlement of insurance claims. ASU 2016-15 is effective for annual periods beginning after December 15, 2017, with early adoption permitted. The Company adopted ASU No. 2016-15 as of January 1, 2018. The adoption of this update did not impact the Company's consolidated financial statements and related disclosures.

Recent Accounting Pronouncements to Be Adopted

Revenue from Contracts with Customer

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers (Topic 606)" (ASU 2014-09) as modified by ASU No. 2015-14, "Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date," ASU 2016-08, "Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net)," ASU No. 2016-10, "Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing," and ASU No. 2016-12, "Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients." The revenue recognition principle in ASU 2014-09 is that an entity should recognize revenue to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In addition, new and enhanced disclosures will be required. Companies may adopt the new standard either using the full retrospective approach, a modified retrospective approach with practical expedients, or a cumulative effect upon adoption approach. The Company will continue to book revenue under its current method. The Company plans to apply ASC 606 revenue recognition once revenue from contracts with customers is material.

Leases

In February 2016, FASB issued ASU No. 2016-02, *Leases (Topic 842)* which supersedes FASB ASC Topic 840, *Leases (Topic 840)* and provides principles for the recognition, measurement, presentation and disclosure of leases for both lessees and lessors. The new standard requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. This classification will determine whether lease expense is recognized based on an effective interest method or on a straight-line basis over the term of the lease, respectively. A lessee is also required to record a right-of-use asset and a lease liability for all leases with a term of greater than twelve months regardless of classification. Leases with a term of twelve months or less will be accounted for similar to existing guidance for operating leases. The standard will be effective for annual and interim periods beginning after December 15, 2018, with early adoption permitted upon issuance. The Company is currently evaluating the impact that ASU 2016-02 will have on its consolidated financial statements and related disclosures.

Compensation-Stock Compensation

In May 2017, the FASB issued ASU No. 2017-09, *Compensation-Stock Compensation (Topic 718): Scope of Modification Accounting*, which clarifies when to account for a change to the terms or conditions of a share-based payment award as a modification. Under the new guidance, modification accounting is required only if the fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions. It is effective prospectively for the annual period ending December 31, 2018 and interim periods within that annual period. Early adoption is permitted. The Company is currently evaluating the impact of adopting this standard on the consolidated financial statements and disclosures, but does not expect it to have a significant impact.

Accounting for Certain Financial Instruments with Down Round Features

In July 2017, the FASB has issued a two-part ASU No. 2017-11, (i). *Accounting for Certain Financial Instruments with Down Round Features* and (ii) *Replacement of the Indefinite Deferral for Mandatorily Redeemable Financial Instruments of Certain Nonpublic Entities and Certain Mandatorily Redeemable Noncontrolling Interests with a Scope Exception* which simplifies the accounting for certain financial instruments with down round features, a provision in an equity-linked financial instrument (or embedded feature) that provides a downward adjustment of the current exercise price based on the price of future equity offerings. It is effective for public business entities for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. Early adoption is permitted. The Company will be evaluating the impact of adopting this standard on the consolidated financial statements and disclosures.

In February 2018, the FASB issued ASU 2018-02, Income Statement - Reporting Comprehensive Income, (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income, which allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the newly enacted federal corporate income tax rate under the Tax Cuts and Jobs Act. The amount of the reclassification would be the difference between the historical corporate income tax rate and the newly enacted 21% corporate income tax rate. The new standard is effective for fiscal years, including interim periods within those fiscal years, beginning after December 15, 2018 with early adoption in any interim period permitted. The Company is currently evaluating the effect that the updated standard will have on its consolidated financial statements and related disclosures.

4. Fair Value Measurements

Derivative Warrants Granted in 2017 & 2016

During the years ended December 31, 2017 and 2016, the Company issued approximately 362 million and 31 million warrants (the "Warrants") to multiple investors (the "Holders"). Since the Company's adoption of a sequencing policy (see Note 3), the Warrants were classified as liabilities and measured at fair value on the grant date, with changes in fair value recognized as other income (expense) on the consolidated statements of operations and disclosed in the financial statements.

A summary of weighted average (in aggregate) significant unobservable inputs (Level 3 inputs) used in measuring warrants granted during the years ended December 31, 2017 and 2016 is as follows:

	2017 Warrants Granted Associated with			
	Public and Private Offering	Debt Conversion	Issuance of Debt	Modification/ Extinguishment of Warrant Liabilities
Strike price	$ 0.34	$ 0.44	$ 0.19	$ 0.25
Contractual term (years)	2.2	2.6	2.0	3.7
Volatility (annual)	112%	107%	113%	107%
Risk-free rate	2%	1%	1%	2%
Dividend yield (per share)	0%	0%	0%	0%

	2016 Warrants Granted Associated with		
	Public and Private Offering	Debt Conversion	Issuance of Debt
Strike price	$ 0.36	$ 0.48	$ 0.35
Contractual term (years)	5.0	5.5	2.2
Volatility (annual)	99%	137%	84%
Risk-free rate	2%	1%	1%
Dividend yield (per share)	0%	0%	0%

Embedded Conversion Features in 2017

A summary of weighted average (in aggregate) significant unobservable inputs (Level 3 inputs) used in measuring embedded conversion features at inception for convertible notes issued during the year ended December 31, 2017 is as follows:

Conversion price	$ 0.41
Contractual term (years)	1.9
Volatility (annual)	97%
Risk-free rate	1%
Dividend yield (per share)	0%

The following table classifies the Company's liabilities measured at fair value on a recurring basis into the fair value hierarchy as of December 31, 2017 and 2016 (in thousands):

	Fair value measured at December 31, 2017			
	Fair value at December 31, 2017	Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Warrant liability	$ 40,171	$ -	$ -	$ 40,171
Embedded conversion feature	2,608	-	-	2,608
Share-settled debt (in default)	3,308	-	-	3,308
Total fair value	$ 46,087	$ -	$ -	$ 46,087

	Fair value measured at December 31, 2016			
	Fair value at December 31, 2016	Quoted prices in active markets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Warrant liability	$ 4,862	$ -	$ -	$ 4,862
Share-settled debt (in default)	5,200	-	-	5,200
Total fair value	$ 10,062	$ -	$ -	$ 10,062

There were no transfers between Level 1, 2 or 3 during the years ended December 31, 2017 and 2016.

The following table presents changes in Level 3 liabilities measured at fair value for the years ended December 31, 2017 and 2016. Both observable and unobservable inputs were used to determine the fair value of positions that the Company has classified within the Level 3 category. Unrealized gains and losses associated with liabilities within the Level 3 category include changes in fair value that were attributable to both observable (e.g., changes in market interest rates) and unobservable (e.g., changes in unobservable long- dated volatilities) inputs (in thousands).

	Warrant Liability	Embedded Conversion Feature	Share-settled Debt (in Default)	Total
Balance – January 1, 2016	$ 27,982	$ -	$ -	$ 27,982
Extinguishment of derivative liabilities related to Cognate	(10,131)	-	-	(10,131)
Extinguishment of warrant liabilities related to warrants exercised for cash	(415)	-	-	(415)
Warrants granted	5,317	-	-	5,317
Share-settled debt assumed from Cognate	-	-	5,680	5,680
Conversion of share-settled debt	-	-	(480)	(480)
Change in fair value	(17,891)	-	-	(17,891)
Balance – December 31, 2016	4,862	-	5,200	10,062
Warrants granted related to:				
Public and private offering	19,623	-	-	19,623
Debt conversion	7,543	-	-	7,543
Issuance of debt	139	-	-	139
Cognate accounts payable settlement	11,204	-	-	11,204
Modification of warrant liabilities	3,048	-	-	3,048
Sub-total	41,557	-	-	41,557
Issuance of convertible notes	-	4,262	-	4,262
Extinguishment of embedded derivative liabilities related to debt conversion	-	(5,264)	-	(5,264)
Extinguishment of warrant liabilities related to warrants exercised for cash	(2,162)	-	-	(2,162)
Extinguishment of warrant liabilities related to cashless warrants exercise	(3,054)	-	-	(3,054)
Conversion of share-settled debt	-	-	(1,892)	(1,892)
Change in fair value	(1,032)	3,610	-	2,578
Balance –December 31, 2017	$ 40,171	$ 2,608	$ 3,308	$ 46,087

A summary of the weighted average (in aggregate) significant unobservable inputs (Level 3 inputs) used in measuring the Company's warrant liabilities and embedded conversion feature that are categorized within Level 3 of the fair value hierarchy as of December 31, 2017 and 2016 is as follows:

	As of December 31, 2017		As of December 31, 2016
	Warrant Liability	Embedded Conversion Feature	Warrant Liability
Strike price	$ 0.31	$ 0.50	$ 0.60
Contractual term (years)	2.6	2.5	4.7
Volatility (annual)	110%	102%	98%
Risk-free rate	2%	2%	2%
Dividend yield (per share)	0%	0%	0%

5. Stock-based Compensation

Common Stock issued to Related Party

The Company issued 175,000 shares of common stock for services to Cognate debt holders in partial satisfaction of amounts owed to Cognate for manufacturing services, which resulted in compensation expense of $86,000 for the year ended December 31, 2016. No shares were granted to Cognate for services compensation during the year ended December 31, 2017.

Stock Options

On June 13, 2017, the Company granted options (the "Options") to acquire shares of the Company's common stock (the "Shares") to Dr. Marnix Bosch, the Chief Technical Officer of the Company, and Dr. Alton Boynton, the Chief Scientific Officer of the Company. The Options were granted pursuant to the Second Amended and Restated Northwest Biotherapeutics, Inc. 2007 Stock Plan (the "Equity Plan"). The Equity Plan provided for awards of various types of equity securities (including common stock, restricted stock units, options and/or other derivative securities) to employees and directors of the Company.

Dr. Bosch received Options exercisable for approximately 7.9 million Shares and Dr. Boynton received Options exercisable for approximately 3.4 million Shares. The Options are exercisable at a price of $0.25 per share, and have a 5-year exercise period. The Options were extended to 10 years during Q1 2018. The Options granted to Dr. Bosch and Dr. Boynton are subject to vesting requirements. 50% of the Options vested on the grant date, and 50% will vest over a 24-month period in equal monthly installments, provided that the recipient continues to be employed by the Company. The unvested portions of the Options are subject to accelerated vesting upon (i) a change of effective control of the Company, (ii) the filing of the first Biologics License Application or other application for product approval in any jurisdiction, (iii) completion of any randomized clinical trial that meets its endpoint(s) (Phase II or Phase III), (iv) decision by the Board, in its discretion or (v) the death of the recipient.

The following table summarizes stock option activity for the Company's option plans during the year ended December 31, 2017. There is no stock option activity during the year ended December 31, 2016 (amount in thousands, except per share number):

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)	Total Intrinsic Value
Outstanding as of December 31, 2016	1,551	$ 10.56	1.9	$ -
Granted	11,343	0.25	4.5	-
Forfeited/expired	(238)	9.90	-	-
Outstanding as of December 31, 2017	12,656	$ 1.32	4.1	-
Options vested and exercisable	7,964	$ 1.38	4.0	$ -

The following assumptions were used to compute the fair value of stock options granted during the year ended December 31, 2017:

	For the Year Ended December 31, 2017
Exercise price	$ 0.25
Expected term (years)	2.8
Expected stock price volatility	96%
Risk-free rate of interest	2%

The weighted average grant date fair value was approximately $0.7 million. As of December 30, 2017, there was approximately $0.2 million of total unrecognized compensation expense related to non-vested share-based compensation arrangements granted under the plans for employee stock options. That cost is expected to be recognized over a weighted average period of 1.5 years.

The Company recorded stock-based compensation expense of approximately $0.8 million and $13.6 million, which was included as part of research and development expenses for the years ended December 31, 2017 and 2016, respectively.

6. Property, Plant and Equipment

Property, plant and equipment consist of the following at December 31, 2017 and 2016 (in thousands):

	December 31, 2017	December 31, 2016	Estimated Useful Life
Leasehold improvements	$ 81	$ 69	Lesser of lease term or estimated useful life
Office furniture and equipment	25	25	3 years
Computer equipment and software	622	626	3 years
	728	720	
Less: accumulated depreciation	(559)	(405)	
Total property, plant and equipment, net	$ 169	$ 315	
Construction in progress (property in the United Kingdom)*	$ 47,604	$ 44,559	15 years
Less: accumulated depreciation	(285)	-	
Total Construction in progress (property in the United Kingdom), net	$ 47,319	$ 44,559	

* Construction in progress includes both the land acquisition costs and the building improvement costs.

Depreciation expense was approximately $439,000 and $189,000 for the years ended December 31, 2017 and 2016, respectively.

7. Notes Payable

The following table summarizes outstanding debt as of December 31, 2017 and 2016, respectively (amount in thousands):

	Maturity Date	Stated Interest Rate	Conversion Price	Face Value	Remaining Debt Discount	Remaining Debt Premium	Fair Value of Embedded Conversion Option	Carrying Value
Short term convertible notes payable								
6% unsecured (1)	Due	6%	$ 3.09	$ 135	$ -	$ -	$ -	$ 135
10% unsecured (2)	Due*	10%	$ 0.16	-	-	-	-	-
				135	**-**	**-**	**-**	**135**
Short term notes payable								
8% unsecured (3)	9/3/2018 and 12/5/2018	8%	N/A	2,007	-	355	-	2,362
8% unsecured (4)	6/30/2018	8%	N/A	1,655	(103)	-	-	1,552
10% unsecured (5)	On Demand	10%	N/A	650	-	-	-	650
12% unsecured (6a)	On Demand	12%	N/A	440	(82)	-	-	358
8% unsecured (6b)	On Demand	8%	N/A	2,200	-	-	-	2,200
				6,952	**(185)**	**355**	**-**	**7,122**
Short term notes payable - related parties								
10% unsecured - Related Parties (7)	On Demand	10%	N/A	1,071	-	-	-	1,071
12% unsecured - Related Parties (7)	On Demand	12%	N/A	50	-	-	-	50
				1,121	**-**	**-**	**-**	**1,121**
Share-settled debt, at fair value (8)	In Default	18%	$ 0.24	**3,308**	**-**	**-**	**-**	**3,308**
Short term mortgage loan (9)	8/16/2018 & 11/16/18	12%	N/A	**11,629**	**(403)**	**-**	**-**	**11,226**
Long term convertible notes payable								
12% secured convertible notes (10)	6/21/2020	12%	$ 0.50	**5,350**	**(1,948)**	**-**	**2,608**	**6,010**
Long term notes payable								
8% unsecured (11)	6/20/2019	8%	N/A	**2,880**	**(373)**	**-**	**-**	**2,507**
Ending balance as of December 31, 2017				**$ 31,375**	**$ (2,909)**	**$ 355**	**$ 2,608**	**$ 31,429**

* Fully paid back as of December 31, 2017

	Maturity Date	Stated Interest Rate	Conversion Price	Face Value	Remaining Debt Discount	Carrying Value
Short term convertible notes payable						
6% unsecured (1)	Due	6%	$ 3.09	$ 135	$ -	$ 135
5% 2014 Senior convertible notes (10)	8/15/2017	5%	$ 6.60	11,000	(175)	10,825
				11,135	**(175)**	**10,960**
Short term notes payable						
10% unsecured (2)	11/4/2017	10%	N/A	**2,450**	**-**	**2,450**
Short term notes payable - related parties (7)						
10% unsecured - Related Parties	On Demand	10%	N/A	50	-	50
12% unsecured - Related Parties	On Demand	12%	N/A	260	-	260
				310	**-**	**310**
Share-settled debt, at fair value (8)	In Default	18%	$ 0.35	**5,200**	**-**	**5,200**
Mortgage loan (9)	11/16/17 & 8/13/17	12%	N/A	**10,156**	**(365)**	**9,791**
Long term note payable						
8% unsecured note (4)	6/30/2018	8%	N/A	**3,310**	**(310)**	**3,000**
Ending balance as of December 31, 2016				**$ 32,561**	**$ (850)**	**$ 31,711**

(1) This $135,000 note as of December 31, 2017 and 2016 consists of two separate 6% notes in the amounts of $110,000 and $25,000. In regard to the $110,000 note, the Company has made ongoing attempts to locate the creditor to repay or convert this note, but has been unable to locate the creditor to date. In regard to the $25,000 note, the holder has elected to convert these notes into equity, the Company has delivered the applicable conversion documents to the holder, and the Company is waiting for the holder to execute and return the documents.

(2) On November 4, 2016, the Company entered into three promissory notes agreements ("the November 2016 Notes") with an individual investor ("the Holder") for an aggregate amount of $2.45 million. The Notes bore interest at the rate of 10% with 1 year term.

On March 3, 2017, the Company entered into a series of promissory notes (the "March 2017 Notes") with unrelated third parties in the original principal amount of $1,450,000 with an original issuance discount of 3% for aggregate net proceeds of $1.4 million with no stated interest rate.

On April 12, 2017, the Company made a repayment of $258,000 to one of the March 2017 Notes holders.

During the year ended December 31, 2017, the Company entered into multiple amendments (the "Amendment") to the November 2016 Notes and March 2017 Notes. The Company recorded an approximate $2.4 million debt extinguishment loss from the Amendment, which was part of the embedded conversion features. The Company also recorded approximately $407,000 additional debt premium pursuant to the Amendment.

During the year ended December 31, 2017, the Company induced the holders of the November 2016 Notes and March 2017 Notes to convert approximately $4.2 million of principal, debt premium and accrued interest into approximately 24.7 million shares of common stock at a fair value of approximately $5.8 million, and approximately 43.8 million warrants with weighted average exercise price of $0.53, at fair value of approximately $4.6 million using Black-Scholes model. The Company also reversed approximately $5.2 million of embedded conversion features, which was marked to market value as of the conversion date and was recorded as gain from debt extinguishment.

Overall, the Company recorded approximately $1.0 million net debt extinguishment loss from this conversion.

(3) On March 3, 2017 and June 5, 2017, the Company entered into two promissory notes agreement (the "Old Notes") with the same investor for an aggregate principal amount of $2,310,000. The Old Notes bore interest at 8% per annum with a 6 month term. One of the Old Notes became in default as of September 3, 2017. The Old Notes carry an original issue discount of $300,000 and $10,000 legal cost that was reimbursable to the investor.

On October 17, 2017 and November 8, 2017, the Company entered into two Exchange Agreement with the holder of the Old Notes to convert an aggregate $2,310,000 principal and $100,000 accrued interest into two new promissory notes (the "New Notes"). The two New Notes had original principal amount of $1,214,000 and $1,196,000, respectively. The New Notes bore interest at 8% per annum, and will be due on September 3, 2018 and December 5, 2018, respectively.

The net book value of the Old notes and fair value of the New Notes as of the exchange date were approximately $2,382,000 and $2,764,000, respectively. The company recorded approximately $382,000 debt extinguishment loss from these exchanges.

During the year ended December 31, 2017, the Company converted approximately $403,000 principal and $16,000 accrued interest of the New Notes into approximately 3 million shares of common stock at fair value of $649,000. The Company recorded approximately $231,000 debt extinguishment loss from this conversion.

(4) On December 30, 2016, the Company entered into a note purchase agreement (the "Note") with an individual investor for an aggregate principal amount of $3.3 million. The Note bore interest at 8% per annum with 18 months term. The Note carries an original issue discount of $300,000 and $10,000 legal cost that was reimbursable to the investor.

During the year ended December 31, 2017, the Company entered into multiple exchange agreement with the Note holder to convert approximately $1.7 million principal and $0.2 million accrued interest into approximately 13.1 million shares of common stock at fair value of $2.7 million. The Company recorded approximately $0.8 million debt extinguishment loss from this conversion.

(5) During the year ended December 31, 2017, the Company entered multiple promissory note agreement (the "Notes") with certain investors for an aggregate principal amount of $2.4 million. The Notes bore interest at either 0%, 10% or 12% per annum, and were payable upon demand.

During the year ended December 31, 2017, the Company induced the holders to convert approximately $1.8 million principal and accrued interest of the Notes into approximately 10.6 million shares of common stock at fair value of approximately $1.9 million.

In addition, the Company issued approximately 12.5 million warrants with an exercise price of $0.49 and a fair value of approximately $0.9 million.

The Company recorded debt extinguishment of approximately $1.1 million for the year ended December 31, 2017.

(6a) During the year ended December 31, 2017, the Company entered two promissory note agreements (the "Notes") with the same investor for an aggregate principal amount of $440,000. The Notes bore interest at 12% per annum, and is payable upon demand. The Company also issued approximately 1.2 million warrants with a weighted average strike price of $0.19 in conjunction the Note. The Company recorded $139,000 debt discount at the issuance date, which is the fair value of the warrants.

(6b) On December 29, 2017, the Company entered a promissory note agreements (the "Note") with a third party for principal amount of $2.2 million. The Note bore interest at 8% per annum, and is payable upon demand.

(7) Related Party Notes

Goldman Notes

During the year ended December 31, 2017, Leslie J. Goldman, an officer of the Company, loaned the Company an aggregate amount of $1,335,000 pursuant to certain Demand Promissory Note Agreements (the "Goldman Notes"). $470,000 of the Goldman Notes bore interest at the rate of 12% per annum, and $864,000 of the Goldman Notes bore interest at the rate of 10% per annum.

During the year ended December 31, 2017, the Company made an aggregate principal payment of $1,230,000 to settle some of Mr. Goldman's outstanding demand notes, and an aggregate of $47,000 interest payment associated with these demand notes. Such payment included repayment of $350,000 outstanding debt incurred during the year ended December 31, 2016.

The outstanding principal amount for Goldman Notes was $414,000 as of December 31, 2017.

Toucan Notes

During the year ended December 31, 2017, Toucan Capital Fund III loaned the Company an aggregate amount of $1,170,000 pursuant to multiple Demand Promissory Notes (the "Toucan Notes"). The Toucan Notes bear interest at 10% per annum, and are payable upon demand, with 7 days' prior written notice to the Company.

During the year ended December 31, 2017, the Company repaid approximately $764,000 of the Toucan Notes.

The outstanding principal amount for Toucan Notes was $407,000 as of December 31, 2017.

Board of Directors Notes

During the year ended December 31, 2017, Jerry Jasinowski, Robert Farmer and Cofer Black, members of the Company's Board of Directors, loaned the Company an aggregate amount of $300,000 pursuant to multiple Demand Promissory Notes (the "Notes"). The Notes bear interest at 10% per annum, and are payable upon demand, with 7 days' prior written notice to the Company. No repayments have been made on any of these notes. The full principal amounts remained outstanding as of December 31, 2017.

(8) During the year ended December 31, 2017, the holder of the Company's share-settled debt converted approximately $1.9 million of outstanding share-settled debt.

(9) The two mortgage loans were originally due in August 2017 and November 2017, and have been renewed for additional one year until August 16, 2018 and November 16, 2018. The Company recorded $521,000 renewal fees during the year ended December 31, 2017.

(10) 2014 Senior Convertible Notes

Due to the Nasdaq delisting on December 19, 2016, the term of the 2014 Convertible Senior Notes (the "2014 Notes") Indenture required the Company to offer to repurchase the entire principal and all remaining interest through the Notes' original maturity date. The debt holders (the "Holders") accepted the offer, and the Company was required to repurchase the entire 2014 Notes on March 10, 2017.

The full repurchase of $11 million of 2014 Notes, as well as $660,000 of interest payments and cash and stock forbearance payments were completed during the year ended December 31, 2017, through a series of transactions.

During the year ended December 31, 2017, the Company entered into multiple agreements to extend the date for payment of the 2014 Notes to June 20, 2017. As an additional consideration to the Holders to delay the 2014 Notes repayment, the Company issued the Holders an aggregate 7.1 million shares of common stock. The total forbearance charge of $2.6 million was recorded as a debt extinguishment loss and was based upon the fair value of the common stock of $2.1 million on the grant date and cash payments of $0.5 million.

During the year ended December 31, 2017, the Company repaid in cash $3.0 million of principal of the 2014 Notes, and repaid an additional $3.0 million of principal in common stock and warrants, and $5 million of principal of the 2014 Notes was repurchased by the investor pursuant to an Exchange Agreement and Note Agreement, as described below.

2017 Secured Convertible Notes

On June 21, 2017, an unaffiliated investor (the "Investor") agreed to purchase $5.0 million of the 2014 Notes from the Holders, pursuant to a Purchase Agreement (the "Purchase Agreement").

Also, on June 21, 2017, the Company and the Investor entered into an Exchange Agreement (the "Exchange Agreement") pursuant to which the Investor agreed to exchange its $5.0 million of the 2014 Note for new convertible notes (the "2017 Notes") with an aggregate principal amount of approximately $5.6 million, inclusive of original issue discount of approximately 9%. The Company and the Investor also entered another secured convertible note with an aggregate principal amount of approximately $355,000, inclusive of original issue discount of approximately 9%, for $204,000 in cash. Total debt outstanding as of December 31, 2017 was $5.4 million under the 2017 Secured Convertible Notes.

The 2017 Notes have a 3-year maturity and bear interest at 12% per annum. No interest will be payable during the term, but interest will accrue and be payable at maturity. The 2017 Notes are secured by the property owned by the Company in the U.K., and not by any other assets of the Company. The 2017 Notes and accrued interest will be convertible at any time during the term at fixed conversion prices: 50% of the principal and accrued interest will be convertible at $0.25 per share, 25% of the principal and accrued interest will be convertible at $0.50 per share and 25% of the principal and accrued interest will be convertible at $1.00 per share. The transaction was accounted for as a debt extinguishment. The Company recorded an approximate $1.8 million embedded conversion feature on the 2017 Notes as part of debt discount on the issuance date.

On August 4, 2017, the Company induced the holder to convert $650,000 principal of the 2017 Notes into approximately 3.3 million shares of common stock at fair value of $0.24. In addition, the Company also issued approximately 1.6 million warrants with an exercise price of $0.23 and 1.6 million warrants with an exercise price of $0.30. The aggregate fair value of these 3.2 million warrants was approximately $0.4 million using a Black-Scholes model. The Company also reversed approximately $108,000 of embedded derivative liabilities and a $256,000 unamortized debt discount associated with the 2017 Notes. The Company recorded approximately $668,000 debt extinguishment loss from this conversion.

(11) On December 20, 2017, the Company entered into a note purchase agreement (the "Note") with an individual investor for an aggregate principal amount of $2,880,000. The Note bore interest at 8% per annum with 2 years term. The Note carries an original issue discount of $375,000 and $5,000 legal cost that was reimbursable to the investor.

The following table summarizes total interest expenses related to senior convertible notes, share-settled debt, other notes and mortgage loan for years ended December 31, 2017 and 2016, respectively (in thousands):

	For the years ended December 31,	
	2017	**2016**
Interest expenses related to 2014 Senior convertible notes:		
Contractual interest	$ 424	$ 551
Amortization of debt issuance costs	175	282
Total interest expenses related to senior convertible notes	**599**	**833**
Interest expenses related to other notes:		
Contractual interest	1,924	1,152
Additional debt premium	407	-
Amortization of debt discount	846	-
Total interest expenses related to other notes	**3,177**	**1,152**
Interest expenses related to mortgage loan:		
Contractual interest	1,263	1,259
Amortization of debt issuance costs	495	568
Total interest expenses on the mortgage loan	**1,758**	**1,827**
Other interest expenses	11	6
Total interest expense	**$ 5,545**	**$ 3,818**

8. Net Loss per Share Applicable to Common Stockholders

Basic loss per common share is computed by dividing net loss by the weighted average number of common shares outstanding during the reporting period. Diluted loss per common share is computed similar to basic loss per common share except that it reflects the potential dilution that could occur if dilutive securities or other obligations to issue common stock were exercised or converted into common stock.

The following securities were not included in the diluted net loss per share calculation because their effect was anti-dilutive as of the periods presented (in thousands):

	For the years ended December 31,	
	2017	2016
Series A convertible preferred stock	97,200	-
Series B convertible preferred stock	55,819	-
Common stock options	12,656	1,551
Common stock warrants - equity treatment	30,838	38,241
Common stock warrants - liability treatment	289,568	20,037
Share-settled debt and accrued interest, at fair value	18,211	15,429
Convertible notes and accrued interest	15,735	1,766
Potentially dilutive securities	**520,027**	**77,024**

9. Related Party Transactions

Cognate BioServices, Inc.

The Company and Cognate BioServices entered into a DCVax-L Manufacturing Services Agreement and a DCVax-Direct Manufacturing Services Agreement, both effective January 17, 2014, and those Agreements followed and superseded Manufacturing Services Agreements in 2011 and 2007. The 2007 and 2011 Agreements had provided for baseline charges to the Company per month for dedicated manufacturing capacity, and the 2014 DCVax-L and DCVax-Direct Manufacturing Services Agreements also provide for such baseline charges. These minimum charges reflect the fact that the manufacturing suites and capacity that are going to be used for production of the Company's DCVax products ideally must be dedicated exclusively to the DCVax products and cannot be used to produce numerous different clients' products in batches on a "campaign" basis, as is usually the case in contract manufacturing facilities. See description in Note 1 above. The capacity charges in the DCVax-L and DCVax-Direct Agreements entered into in January 2014 were increased in connection with the expansion of DCVax-L and DCVax-Direct production needed for the Company's growing programs and requested by the Company.

Under the January 17, 2014 DCVax®-L Manufacturing Services Agreement and the DCVax-Direct Agreement, a new set of provisions apply going forward to any shut down or suspension. Under these provisions, the Company will be contingently obligated to pay certain fees to Cognate BioServices (in addition to any other remedies) if the Company shuts down or suspends its DCVax-L program or DCVax-Direct program.

For a shut down or suspension of the DCVax-L program, the fees will be as follows:

- Prior to the last dose of the last patient enrolled in the Phase III trial for DCVax®-L or After the last dose of the last patient enrolled in the Phase III clinical trial for DCVax®-L but before any submission for product approval in any jurisdiction or after the submission of any application for market authorization but prior to receiving a marketing authorization approval: in any of these cases, the fee shall be $3 million.

- At any time after receiving the equivalent of a marketing authorization for DCVax®-L in any jurisdiction, the fee shall be $5 million.

For a shut down or suspension of the DCVax-Direct program, the fees will be as follows:

- Prior to the last dose of the last patient enrolled in the Phase I/II trial for DCVax®-Direct, the fee shall be $1.5 million.

- After the last dose of the last patient enrolled in the Phase I/II clinical trial for DCVax®-Direct but before the initiation of a Phase III trial the fee shall be $2.0 million.

- After initiation of a phase III trial but before submission of an application for market authorization in any jurisdiction or after the submission of an application for market authorization but prior to receiving a market authorization approval: in each of these cases, the fee shall be $3.0 million.

- At any time after receiving the equivalent of a marketing authorization for DCVax®-Direct in any jurisdiction the fee shall be $5.0 million.

As of December 31, 2017, no shut-down or suspension fees were triggered.

In addition, while our DCVax programs are ongoing, the Company is required to pay certain fees for dedicated production suites or capacity reserved exclusively for DCVax production, and pay for a certain minimum number of patients, whether or not we fully utilize the dedicated capacity and number of patients.

Nasdaq Remediation Plan

As previously reported, on April 26, 2016, the Nasdaq Staff notified the Company that it had reviewed certain stock issuances by the Company to Cognate during 2014 and 2015, and that the Staff had determined that those issuances should be aggregated for purposes of applying Nasdaq rules. Under Nasdaq rules, for purposes of measuring against the limit of 20% of total shares outstanding, all of the stock issuances made by the Company to Cognate during 2014 and 2015 were aggregated, and they were measured against only the shares outstanding in January 2014. Based on the aggregation, the Nasdaq staff determined that certain issuances violated certain Nasdaq listing rules.

The Company proposed a remediation plan (the "Remediation Plan") that Cognate would surrender certain shares and warrants it had received in connection with the Contracts, Cognate would accept an increase in the exercise price of certain warrants received in connection with the Contracts, and the most favored nation anti-dilution provisions would be deleted from the Contracts.

The Remediation Plan was accepted by the Nasdaq staff on August 30, 2016. Pursuant to the Remediation Plan:

(a) Cognate returned and the Company canceled 8,052,092 restricted shares previously issued to Cognate under the most favored nation anti-dilution provisions of the Contracts, and the most favored nation provisions were deleted from the Contracts. The Company debited par value and credited additional paid in capital on August 30, 2016.

(b) Cognate returned and the Company canceled warrants for 6,880,574 shares issued under the 2014 Agreements, and the Company issued to Cognate new warrants for 4,305,772 shares at a higher exercise price ($4.27) with 5 year term (see FN 4).

(c) Cognate returned and the Company canceled 731,980 of the total of 5,101,330 restricted shares initially issued under the 2014 Agreements. The Company debit $732 to the par value and credit same amount to additional paid in capital.

The remaining portions of the multi-year lock-up and vesting periods relating to shares and warrants held by Cognate were also cancelled.

The Nasdaq settlement does not affect other obligations of the Company to Cognate, including for existing unpaid invoices, as the Company has previously reported.

Settlements of 2016 and 2017 Obligations to Cognate;

As previously reported, on December 31, 2017, the Company and Cognate entered into settlement agreements with Cognate BioServices, Inc. (the "Cognate Settlement Agreement") for unpaid invoices and obligations for 2016 and 2017 (the "Cognate Obligations") and for temporary reduction in the contractual amounts owed for 2017.

The Company and Cognate negotiated an overall settlement for amounts owed to Cognate for 2016 and 2017, to reduce the amounts otherwise due under the contracts and at the conclusion the remaining accounts payable to Cognate BioServices, Inc. was approximately $4.5 million. According to the Cognate Settlement Agreement, approximately $22.0 million of the Cognate Obligations were satisfied through the issuance to Cognate of 2.9 million shares of Series A Convertible Preferred Stock and 5.2 million shares of Series B Convertible Preferred Stock. Each share of Series A Convertible Preferred Stock and Series B Convertible Preferred Stock are convertible into 10 shares of Common Stock. The Company also issued Cognate 29.4 million shares of Class D-1 Warrants with exercise price of $0.22 per share and 52 million shares of Class D-2 Warrants with exercise price of $0.30 per share.

The following table shows a summary of the Cognate Settlement Agreement (amount in thousands):

Unpaid invoices for 2016 and 2017	$	(21,963)
Fair value of Series A Convertible Preferred Stock		6,919
Fair value of Series B Convertible Preferred Stock		12,235
Fair value of Class D-1 and Class D-2 warrants		11,204
Additional research and development cost recorded from Cognate settlement	$	8,395

Cognate Expenses and Accounts Payable

As of December 31, 2017 and 2016, the Company owed Cognate and Advent BioServices $5.2 million and $23.4 million, respectively, for unpaid invoices for manufacturing capacity, product distribution, product and process development, and related services.

The following table shows a summary of research and development costs from Cognate and Advent BioServices relating to the DCVax-L and DCVax-Direct programs, product and process development work and preparations for upcoming Phase II trials for the years ended December 31, 2017 and 2016, respectively (in thousands):

	For the years ended December 31,	
	2017	**2016**
Cognate and Advent BioServices research and development cost - services	$ 16,227	$ 34,665
Stock issued to and returned by Cognate	-	13,654
Research and development cost from Cognate settlement	8,395	-
Total	$ 24,622	$ 48,319

Share Based Payments

On September 7, 2016, under the Company's Remediation Agreement with Nasdaq, Cognate returned 8,052,092 vested shares to the Company. The Company cancelled them and recorded this as a reduction in shares outstanding. Cognate also held 731,980 unvested shares at that time. Cognate returned those 731,980 shares to the Company and the Company cancelled them as well. At the time, the development expense associated with the 731,980 shares was $221,000.

Shares payable to related party - elimination of most favored nation provision

Shares and warrants previously issued to Cognate in partial payment of invoices for manufacturing services were under a 3-year lock-up, which had been in place since January 2014. The lock-up prevented Cognate from selling the shares received. During the lock-up, if the Company entered into a transaction with other investors or creditors on more favorable terms than Cognate received, the Company had an ongoing obligation, under the Manufacturing Services Agreements, to conform the terms of Cognate's shares and warrants to the same terms as the other investors or creditors, under a most favored nation provision.

During the year ended December 31, 2016, the Company entered into several financings with unrelated institutional investors that triggered the most favored nation provision.

However, these most favored nation shares were never issued to Cognate. Under the Remediation Agreement, Cognate agreed to eliminate the most favored nation provisions, and to forego these shares that had already been triggered. As a result of the elimination of the most favored nation, the Company reclassified $22.5 million shares payable which resulted in an increase to additional paid in capital.

Forgiveness of Certain Payables to Cognate BioServices, Inc.

In the second quarter of fiscal 2017 Cognate released from the Company the obligation under the 2016 Letter agreement to reimburse them $3.75 million of accounts receivable. This was recorded as a contribution to capital in the statement of stockholders' equity.

Cognate Organization

The Company is consolidating its manufacturing arrangements for European region in the U.K. During 2017, the Cognate affiliates outside the US, in Germany and Israel ceased operations and were closed. The Company was responsible for costs related to closing down the DCVax manufacturing programs in Germany and Israel, including final payments to personnel, remaining lease payments and related costs, such as for legal and accounting services. Approximately $4.2 million of the total research and development cost were related to Cognate entities outside the US and are included in the overall amounts reported with respect to Cognate.

Other Related Parties

Jerry Jasinowski - Private Offering

On December 22, 2016, the Company issued 1,285,714 shares of common stock at $0.35 and warrants to purchase an additional 642,857 shares of Common Stock at an exercise price of $0.35 per share with a five-year term to Jerry Jasinowski, who was appointed to the Board of Directors in April 2012. The Company received proceeds of $450,000.

Leslie J. Goldman - Demand Loan

On October 8, 2015, Leslie J. Goldman, an officer of the Company, loaned the Company $400,000 pursuant to a Demand Promissory Note (the "Goldman Note"). The Goldman Note bore interest at the rate of 8% per annum, and was payable upon demand, with 7 days' prior written notice by Mr. Goldman to the Company. The Goldman Note would also bear 35% warrant coverage on the repayment amount if the Note were not repaid within 30 days of issuance. On November 20, 2015, the Company made a payment of $403,858 to Mr. Goldman including the accrued interest related to the coupon amount. The Company issued 28,384 warrants with a 5 year term and exercise price of $4.98 to Mr. Goldman in connection with this transaction.

On November 28, 2016, Mr. Goldman loaned the Company $260,000 pursuant to a Demand Promissory Note (the "Goldman Note"). The Goldman Note bore interest at the rate of 12% per annum, and was payable upon demand, with 5 days' prior written notice by Mr. Goldman to the Company.

During the year ended December 31, 2017, Mr. Goldman loaned the Company an aggregate amount of $1,335,000 pursuant to certain Demand Promissory Note Agreements (the "Goldman Notes"). $470,000 of the Goldman Notes bore interest at the rate of 12% per annum, and $864,000 of the Goldman Notes bore interest at the rate of 10% per annum.

During the year ended December 31, 2017, the Company made an aggregate principal payment of $1,230,000 to settle some of Mr. Goldman's outstanding demand notes, and an aggregate of $47,000 interest payment associated with these demand notes. Such payment included repayment of $350,000 outstanding debt incurred from the year ending December 31, 2016.

The outstanding principal amount for Goldman Notes was $414,000 as of December 31, 2017.

Toucan Capital III Fund - Demand Loans

During the year ended December 31, 2017, Toucan Capital Fund III ("Toucan") loaned the Company an aggregate amount of $1,170,000 pursuant to multiple Demand Promissory Notes (the "Toucan Notes"). The Toucan Notes bear interest at 10% per annum, and are payable upon demand, with 7 days' prior written notice to the Company.

During the year ended December 31, 2017, the Company repaid approximately $764,000 of the Toucan Notes.

The outstanding principal amount for Toucan Notes was $407,000 as of December 31, 2017.

As of December 31, 2017, the Company owed Toucan $60,000 related to certain payables.

Various Related Parties - Demand Loans

During the year ended December 31, 2017, Jerry Jasinowski, Robert Farmer and Cofer Black, members of the Company's Board of Directors, loaned the Company an aggregate amount of $300,000 pursuant to multiple Demand Promissory Notes (the "Notes"). The Notes bear interest at 10% per annum, and are payable upon demand, with 7 days' prior written notice to the Company. No repayments have been made on any of these notes. The full principal amounts remained outstanding as of December 31, 2017.

10. Temporary Equity

Series A Convertible Preferred Stock

The following table summarizes the Company's Series A Convertible Preferred Stock activities for the year ended December 31, 2017 (amount in thousands):

	Series A Convertible Preferred Stock	
	Shares	**Amount**
Balances as of January 1, 2017	**-**	**$ -**
Issuance of Series A convertible preferred stock and warrants for cash (net of $11.0 million warrant liability and $0.7 million subscription receivable)	7,058	276
Beneficial conversion feature of Series A convertible preferred stock	-	(276)
Deemed dividends related to immediate accretion of beneficial conversion feature of series A convertible preferred stock	-	276
Issuance of common stock for conversion of Series A convertible preferred stock	(400)	(680)
Deemed dividends on conversion of Series A convertible preferred stock to common stock	-	624
Issuance of Series A convertible preferred stock and warrants in exchange for existing warrants	121	300
Conversion of certain payables to Cognate BioServices, Inc. to Series A convertible preferred stock and warrants (see FN 9)	2,941	6,919
Balance as of December 31, 2017	9,720	$ 7,439

On December 8, 2017, the Company entered into Subscription Agreements (the "Series A Subscription Agreements") with certain investors (the "Series A Investors"). Pursuant to the Series A Subscription Agreements, the Company issued to the Series A Investors an aggregate of 7,058,000 shares of the Company's Series A Convertible Preferred Stock, par value $0.001 per share (the "Series A Shares"), at a purchase price of $1.70 per share, and 2 year Class D-1 Common Stock Purchase Warrants (the "Class D-1 Warrants") to purchase up to 70,582,000 shares of common stock at an exercise price of $0.22 per share. The Company received $11.3 million cash, which was net of $0.7 million receivable from the Series A Investors.

The Series A Shares will be convertible into common stock, but only when common stock is available or after 6 months following issuance. When sufficient shares of common stock are available for issuance upon conversion, each Series A Shares will be convertible at the option of the holder, at any time, into a total of 10 shares of common stock, par value $0.001 per share, for a total of 70,582,000 shares of common stock (the equivalent of a conversion price of $0.17 per share of common stock). The Class D-1 Warrants are not currently exercisable and will become exercisable only when shares of common stock are available for issuance upon exercise.

Due to the Sequencing Policy, the Class D-1 Warrants were classified as warrant liabilities. On the issuance date, the Company estimated the fair value of the Class D-1 Warrants at approximately $11 million under the Black-Scholes option pricing model using the following primary assumptions: contractual term of 2.0 years, volatility rate of 117%, risk-free interest rate of 2% and expected dividend rate of 0%. The entire fair value of the Class D-1 Warrants was allocated to the $11.3 million net proceeds (net of subscription receivable of $0.7 million), creating a corresponding preferred stock discount in the same amount.

The Company determined that the Series A Shares contain contingent redemption provisions allowing redemption by the holder upon certain defined events ("deemed liquidation events"). As the event that may trigger the redemption of the Series A Shares is not solely within the Company's control, the Series A Shares are classified as mezzanine equity (temporary equity) in the Company's consolidated balance sheets, net of a subscription receivable of $0.7 million.

The initial fair value of the warrants of approximately $11 million was deducted from the gross proceeds from the Series A Investors to arrive at the initial discounted carrying value of the Series A Shares. The initial discounted carrying value resulted in recognition of a beneficial conversion feature of $0.3 million, further reducing the initial carrying value of the Series A Shares. The discount to the aggregate stated value of the Series A Shares, resulting from recognition of the beneficial conversion feature was immediately accreted as a reduction of additional paid-in capital and an increase in the carrying value of the Series A Shares. The accretion is presented in the Consolidated Statement of Operations as a deemed dividend, increasing net loss to arrive at net loss attributable to common stockholders.

The Series A Shares are not currently redeemable and, as of December 31, 2017, it is not probable they will become redeemable as redemption is contingent on a change of control event. As such, accretion of the remaining discount to the Series A Share aggregate liquidation preference is not made until it is probable that the Series A Shares will become redeemable.

On December 28, 2017, certain Series A Investors converted 400,000 shares of Series A Shares into 4,000,000 shares of common stock based on original term. The Company recognized approximately $624,000 of deemed dividends upon such conversion.

Series B Convertible Preferred Stock

The following table summarizes the Company's Series B Convertible Preferred Stock activities for the year ended December 31, 2017 (amount in thousands):

	Series B Convertible Preferred Stock	
	Shares	Amount
Balances as of January 1, 2017	-	$ -
Issuance of Series B convertible preferred stock and warrants for cash (net of $0.5 million warrant liability and $7,000 subscription receivable)	381	366
Beneficial conversion feature of Series B convertible preferred stock	-	(366)
Deemed dividends related to immediate accretion of beneficial conversion feature of series B convertible preferred stock	-	366
Conversion of certain payables to Cognate BioServices, Inc. to Series B convertible preferred stock and warrants (see FN 9)	5,201	12,235
Balance as of December 31, 2017	5,582	$ 12,601

On December 29, 2017, the Company entered into Subscription Agreements (the "Series B Subscription Agreements") with certain unaffiliated investors (the "Series B Investors"). Pursuant to the Series B Subscription Agreements, the Company issued to the Series B Investors an aggregate of 381,000 shares of the Company's Series B Convertible Preferred Stock, par value $0.001 per share (the "Series B Shares"), at a purchase price of $2.30 per share, and 2 year Class D-2 Common Stock Purchase Warrants (the "Class D-2 Warrants") to purchase up to 3,811,000 shares of common stock at an exercise price of $0.30 per share. The Company received approximately $869,000 cash, which was net of $7,000 receivable from the Series B Investors.

The Series B Preferred Stock will be convertible into common stock, but only when common stock is available or after 6 months following issuance. When sufficient shares of common stock are available for issuance upon conversion, each share of Series B Preferred Stock will be convertible at the option of the holder, at any time, into a total of 10 shares of common stock, par value $0.001 per share, for a total of 3,811,000 shares of common stock (the equivalent of a conversion price of $0.23 per share of common stock). The Class D-2 Warrants are not currently exercisable and will become exercisable only when shares of common stock are available for issuance upon exercise.

Due to the Sequencing Policy, the Class D-2 Warrants were classified as warrant liabilities. On the issuance date, the Company estimated the fair value of the Class D-2 Warrants at approximately $503,000 under the Black-Scholes option pricing model using the following primary assumptions: contractual term of 2.0 years, volatility rate of 116%, risk-free interest rate of 2% and expected dividend rate of 0%. The entire fair value of the Class D-2 Warrants was allocated to the $869,000 net proceeds, creating a corresponding preferred stock discount in the same amount.

The Company determined that the Series B Shares contain contingent redemption provisions allowing redemption by the holder upon certain defined events ("deemed liquidation events"). As the event that may trigger the redemption of the Series B Shares is not solely within the Company's control, the Series B Shares are classified as mezzanine equity (temporary equity) in the Company's consolidated balance sheets, net of a subscription receivable of $7,000.

The initial fair value of the warrants of approximately $0.5 million was deducted from the gross proceeds from the Series B Investors to arrive at the initial discounted carrying value of the Series B Shares. The initial discounted carrying value resulted in recognition of a beneficial conversion feature of $0.4 million, further reducing the initial carrying value of the Series B Shares. The resulting discount to the aggregate stated value of the Series B Shares, resulting from recognition of the beneficial conversion feature, was immediately accreted as a reduction of additional paid-in capital and an increase in the carrying value of the Series A Shares. The accretion is presented in the Consolidated Statement of Operations as a deemed dividend, increasing net loss to arrive at net loss attributable to common stockholders.

The Series B Shares are not currently redeemable and, as of December 31, 2017, it is not probable they will become redeemable as redemption is contingent on a change of control event. As such, accretion of the remaining discount to the Series B Share aggregate liquidation preference is not made until it is probable that the Series B Shares will become redeemable.

11. Stockholders' Equity (Deficit)

Common Stock Issuances

First Quarter of 2017

Public Offering

On March 17, 2017, the Company entered into agreements with institutional investors for a registered direct offering with gross proceeds of $7.5 million. The Company issued 18.8 million shares of common stock at a purchase price of $0.26 per share, or pre-funded warrants in lieu of shares. Additionally, the investors received 5 year Class A warrants to purchase up to approximately 21.6 million shares of common stock with an exercise price of $0.26 per share, 3 month Class B warrants to purchase up to approximately 21.6 million shares of common stock with an exercise price of $1.00 per share, and a pre-paid 3 month Class C warrant to purchase up to approximately 10.0 million shares of common stock with an exercise price of $0.26 per share, of which $0.25 per share was pre-paid at the time of closing and another $0.01 per share is payable upon exercise of each Class C Warrant. Total warrants issued in March 2017 have value of approximately $6.2 million.

Warrants Exercised for Cash

During the quarter ended March 31, 2017, the Company issued an aggregate of 3.1 million shares of common stock from the exercise of warrants that were issued in March 2017 for total proceeds of $31,000. All of these 3.1 million shares of common stock were related to extinguishment of warrant liabilities. The fair value of the warrant liabilities was $713,000 on the date of exercise, which were recorded as a component of additional paid-in-capital.

Stock Compensation - 2014 Senior Convertible Notes

On March 10, 2017, the Company issued approximately 4 million shares of common stock to the holders of the Company's $11 million senior convertible notes as additional consideration to enter into a payment plan and extend the debt payment. The fair value of the common stock on the grant date was approximately $1.5 million. The Company recorded such cost as a debt extinguishment loss.

Share-settled Debt

On March 30, 2017, the Company issued 2.5 million shares of common stock to the holder of the Company's share-settled debt (the "Holder") as advance payment for future debt conversion. The fair value of the remaining share-settled debt will be reduced when the Company is notified by the Holder of the value at which the shares have been sold.

Second Quarter of 2017

Public and Private Offering

On April 14, 2017, the Company entered into Stock Purchase Agreement with multiple investors. The Company issued approximately 1.4 million shares of common stock at a price of $0.26 per share. The investors received Class A Common Stock Purchase Warrants to purchase up to approximately 1 million shares of Common Stock at an exercise price of $0.26 per share (the "Class A Warrants") and Class B Common Stock Purchase Warrants to purchase up to approximately 1 million shares of Common Stock at an exercise price of $1.00 per share (the "Class B Warrants"). Both the Class A Warrants and the Class B Warrants are exercisable immediately. The Class A Warrants are exercisable for five years and the Class B Warrants are exercisable for three months. The Company received gross proceeds of $360,000 from this offering.

During the three months ended June 30, 2017, the Company entered into Subscription Agreements with multiple investors. The Company issued approximately 3.6 million shares of common stock at a weighted average price of $0.15 per share. The investors also received approximately an aggregate 3.3 million warrants at a weighted average exercise price of $0.33 per share. The Company received gross proceeds of $552,000 from this offering.

Debt Conversion

On May 22, 2017, the holders of certain existing notes converted approximately $2.0 million principal amount and accrued interest for approximately 11 million shares of its common stock at a price of $0.18 per share and issued to such investors approximately 8 million Class A warrants with exercise price of $0.26 per share for a period of 5 years and approximately 8 million Class B warrants with exercise price of $1.00 per share for a period of 90 days. The fair value of common stock and warrant liability as of the conversion date was approximately $1.8 million and $0.9 million, respectively. The difference of $0.7 million was recorded as a debt extinguishment loss.

On May 31, 2017, the Company and certain unaffiliated institutional investors (the "Investor") entered into an Exchange Agreement (the "Exchange Agreement") pursuant to which the Investor agreed to exchange $3.0 million of the Company's 2014 Senior Convertible Notes for 20,628,571 shares of common stock, warrants to acquire up to approximately 16 million shares of common stock at an exercise price of $0.175 per share and exercisable for 2 years from the date of issuance of such warrants, and 800,000 shares of Common Stock. The fair value of common stock and warrant liability as of the conversion date was approximately $3.9 million and $1.6 million, respectively.

On June 5, 2017, the Company exchanged approximately $0.5 million principal amount and accrued interest of certain notes held by an unaffiliated investor for approximately 3.3 million shares of its common stock at a price of $0.14 per share and issued to such investors approximately 2.5 million Class D warrants with exercise price of $0.175 per share for a period of 2 years. The fair value of common stock and warrant liability as of the conversion date was approximately $0.6 million and $0.3 million, respectively. The difference of $0.4 million was recorded as a debt extinguishment loss.

Warrants Exercised for Cash

During the three months ended June 30, 2017, the Company issued approximately 6.9 million shares of common stock from the exercise of pre-paid warrants that were issued in March 2017 with an exercise price of $0.26, of which $0.25 was paid in March and $0.01 was paid at the time of exercise, for proceeds of $69,000 at the time of exercise during the three months ended June 30, 2017. All of these 6.9 million shares of common stock were related to extinguishment of warrant liabilities. The fair value of the warrant liabilities was approximately $1.1 million on the date of exercise, which were recorded as a component of additional paid-in-capital.

Stock Compensation - 2014 Senior Convertible Notes

During the three months ended June 30, 2017, the Company issued approximately 3 million shares of common stock to the holders of the Company's $11 million senior convertible note as additional consideration to extend the debt payment and to enter into a forbearance agreement. The fair value of the common stock on the grant date was approximately $0.5 million. The Company recorded such cost as a debt extinguishment loss.

Share-settled Debt

On June 14, 2017, the Company issued 1 million shares of common stock to the holder of the Company's share-settled debt (the "Holder") as advance payment for future debt conversion. The fair value of the remaining share-settled debt will be reduced when the Company is notified by the Holder of the value at which the shares have been sold.

Third Quarter of 2017

Public and Private Offering

On September 22, 2017, the Company entered into a Stock Purchase Agreement with multiple investors. The Company issued approximately 8.7 million shares of common stock at a price of $0.20 per share. The investors received Class A Common Stock Purchase Warrants to purchase up to approximately 4.4 million shares of Common Stock at an exercise price of $0.22 per share (the "Class A Warrants"). The Class A Warrants are exercisable immediately and are exercisable for five years. The Company received gross proceeds of $1.8 million (net proceeds of $1.6 million) from this offering.

During the three months ended September 30, 2017, the Company entered into Subscription Agreements with multiple investors. The Company issued 5.4 million shares of common stock at a weighted average price of $0.20 per share. The investors also received an aggregate of 5.3 million warrants at a weighted average exercise price of $0.26 per share. The Company received gross proceeds of $1.1 million from this offering.

During the three months ended September 30, 2017, the Company received an aggregate of $2.6 million from multiple investors as an advance of certain Subscription Agreements that were entered in November 2017. The Company recorded a $2.6 million shares payable as of September 30, 2017.

Warrants Exercised for Cash and Warrants Modification

On August 7, 2017, the Company entered into a $2.7 million financing with an institutional health care investor holding Class B Warrants exercisable for approximately 13.5 million shares of Common Stock of the Company, in which the investor exercised its Class B Warrants in full in return for amendment of the investor's Class B Warrants to reduce the exercise from $1.00 to $0.20 per share, as set forth in a Warrant Repricing Letter Agreement. The Class B Warrants were originally issued on March 17, 2017 with an exercise period of 90 days, and the exercise period was previously extended to August 24, 2017. The fair value of the amended Class B Warrants on the amendment date was approximately $0.3 million using a Black-Scholes model. There was no residual value for the original Class B warrants as of the amendment date, so the Company recorded $0.3 million as inducement loss.

As consideration for the investor's exercise in full of the Class B Warrants, the Company agreed to issue to the investor new Series A Warrants exercisable for the purchase of 13.5 million shares of the Company's Common Stock at an exercise price of $0.27 per share, with an exercise period of 5 years. The Company also issued an aggregate amount of 0.9 million Class A warrants at an exercise price of $0.27 per share, with an exercise period of 5 years to certain placement agent. The fair value of these 14.5 million warrants were approximately $2.0 million using a Black-Scholes model, and the Company recorded such cost as inducement loss.

Cashless Warrants Exercise

On July 17, 2017, holders of approximately 16 million Class A warrants of the Company exercised such warrants on a cashless basis in exchange for the delivery of approximately 6.9 million shares of the Company's common stock. The fair value of these Class A warrants was approximately $3.1 million as of July 17, 2017.

Debt Conversions

During the quarter ended September 30, 2017, the Company induced certain debt holders to convert approximately $5.5 million of principal and interest into approximately 32.9 million shares of common stock at a fair value of approximately $7.8 million. In addition, the Company issued approximately 40.4 million warrants with a weighted average exercise price of $0.48 and a fair value of $4.7 million.

Share-settled Debt

During the quarter ended September 30, 2017, the Company issued 3.5 million shares of common stock to the holder of the Company's share-settled debt as advance payment for future debt conversion. The fair value of the remaining share-settled debt will be reduced when the Company is notified by the Holder of the value at which the shares have been sold.

Shares for Services

On July 6, 2017, as compensation for services as a Director, the Company issued 1.3 million shares of its common stock at fair value of $0.18 to a designee of Robert Farmer.

Fourth Quarter of 2017

Public and Private Offering

On October 20, 2017, the Company sold 2.9 million shares of common stock at a price of $0.17 per share and issued approximately 1.5 million Class D Warrants exercisable at $0.22 per share for a period of 2 years for an aggregate of $0.5 million.

Warrants Exercised for Cash

During the quarter ended December31, 2017, the Company issued an aggregate of 231,000 shares of common stock from the exercise of warrants that were issued in March 2017 for total proceeds of $60,000. All of these 231,000 shares of common stock were related to extinguishment of warrant liabilities. The fair value of the warrant liabilities was approximately $45,000 on the date of exercise, which were recorded as a component of additional paid-in-capital.

Debt Conversions

During the quarter ended December 31, 2017, the Company induced certain debt holders to convert approximately $1.0 million of principal and interest into approximately 7.3 million shares of common stock at a fair value of approximately $1.6 million. The Company recorded approximately $0.6 million debt extinguishment loss.

Share-settled Debt

During the quarter ended December 31, 2017, the Company issued 4.5 million shares of common stock to the holder of the Company's share-settled debt as advance payment for future debt conversion. The fair value of the remaining share-settled debt will be reduced when the Company is notified by the Holder of the value at which the shares have been sold.

As of December 31, 2017, the outstanding share-settled debt was approximately $3.3 million.

Shares for Services

On November 13, 2017, the Company issued a total of 225,000 shares of Common stock at $0.165 per share to several scientific board members as share-based compensation. The Company recorded the $37,000 expense in research and development.

First Quarter of 2016

On February 29, 2016, the Company entered into a Securities Purchase Agreement (the "Agreement") with certain institutional investors (the "Purchasers"), for a registered direct offering (the "Offering") of 5,882,353 shares (the "Shares") of the Company's Common Stock at the purchase price of $1.70 per share, and Series A Warrants (the "Series A Warrants") to purchase an additional 2,941,177 shares of Common Stock at an exercise price of $2.25 per share. The Series A Warrants will become exercisable on the six-month anniversary of issuance and expire five years thereafter.

In addition, the Company granted the Purchasers a sixty (60) day overallotment option in the form of Series B Warrants to purchase an additional 5,882,353 shares of Common Stock at an exercise price of $3.00 per share (the "Series B Warrants"). The Series B Warrants were exercisable immediately and were to expire within sixty (60) days. However, on May 2, 2016, the Company and the investors agreed to extend this warrant exercise period by twenty-one (21) days, from May 2 to May 23, 2016. The Company and the Purchasers consummated the purchase and sale of the Securities on March 3, 2016 (the "Closing") and the Company raised gross proceeds of $10 million and net proceeds of approximately $9.2 million, after deducting placement agent fees, attorneys' fees and other expenses. Subsequent to the reporting period, the Series B Warrants were extended an additional twenty-one (21) days to May 23, 2016.

Each Purchaser also received Series C Warrants (the "Series C Warrants") to purchase up to 2,941,177 shares of Common Stock. The Series C Warrants vest and become exercisable only if, and to the extent that, the Series B Warrants held by such Purchaser are exercised. The Series C warrants will be issuable and exercisable for one-half share of Common Stock per each Series B Warrant exercised. The Series C Warrants have an exercise price of $4.00 per share, shall be exercisable on the six-month anniversary of issuance and will expire five years thereafter.

In connection with the Offering and the concurrent private placement, the Company agreed to pay the Placement Agent a cash placement fee equal to 7% of the aggregate purchase price for the common stock sold in the registered offering. The Placement Agent also received Common Stock purchase warrants (the "Compensation Warrants") to purchase up to 294,118 shares of Common Stock, or 5% of the aggregate number of shares of common Stock sold in the registered offering, at an exercise price of $2.125, or 125% of the public offering price per share in the registered offering, which are exercisable six months following issuance and terminate on February 29, 2021.

Second Quarter of 2016

On May 15, 2016, the Company entered into an agreement with a holder (the "Holder") of the Company's existing Series A, B and C Warrants, pursuant to which the Holder agreed to exercise all of the Holder's Series B Warrants to purchase 4,411,764 shares of Common Stock. In consideration, the Company agreed to reduce the exercise price of the Series B Warrants to $0.96 per share, the Company's closing price on the prior trading day, for gross proceeds of approximately $4,235,000, and agreed to issue new Series D Common Stock Purchase Warrants (the "Series D Warrants") to purchase up to 2,205,882 shares of Common Stock at an exercise price of $1.00 per share (subject to customary adjustments such as for stock splits and dividends), with an exercise period of five years, commencing six months after issuance.

The Holder's exercise of the Series B Warrants to purchase 4,411,764 shares of Common Stock triggered the existing outstanding Series C Warrants to become vested and exercisable for up to 2,205,882 shares of Common Stock. The Company agreed to reset the exercise price of the Series A and Series C Warrants to $1.00 per share.

In connection with the offering and the concurrent private placement, the Company agreed to pay the Placement Agent a cash placement fee equal to 7% of the aggregate purchase price for the common stock sold. The Placement Agent also received Common Stock purchase warrants (the "Compensation Warrants") to purchase up to 220,588 shares of Common Stock, or 5% of the aggregate number of shares of common Stock sold, at an exercise price of $1.20, or 125% of the public offering price per share, which are exercisable six months following issuance and terminate on May 15, 2021.

The modification of the warrant exercise price increased the value of the warrants by approximately $2.6 million. This cost was recorded as a deemed dividend in additional paid-in capital due to the absence of retained earnings. This cost is included in modification of warrants and increased the net loss available to common shareholders on the consolidated statements of operations.

Third Quarter of 2016

During the quarter ended September 30, 2016, the Company issued 7,400,000 shares of common stock at $0.50 per share, and warrants to purchase an additional 3,700,000 shares of Common Stock at an exercise price of $0.60 per share with five years term through a registered direct offering. The Company received net proceeds of approximately $3.4 million, after deducting aggregate placement agent fees and attorneys' fees of approximately $321,000.

During the quarter ended September 30, 2016, the Company entered into multiple agreements with certain holders (the "Holders") of the Company's existing warrants, pursuant to which the Holders agreed to exercise all of the Holders' warrants to purchase 10,945,694 shares of common stock. In consideration, the Company agreed to reduce the exercise price of the warrants to $0.35 per share, for net proceeds of approximately $3.4 million, after deducting aggregate placement agent fees, attorneys' fees and bank clearing fees of approximately $454,000, and agreed to issue new common stock purchase warrants to purchase up to 10,945,694 shares of common stock at a weighted average exercise price of $0.44 per share, with an exercise period of 5 years, commencing 6 months after issuance. In connection with the registered direct offering, the Company granted 263,122 warrants at an exercise price of $0.44 to the placement agents. The placement agent warrants are exercisable 6 months following issuance and terminate on February 22, 2022.

The modification of the warrant exercise price increased the value of the warrants by approximately $3.0 million. This cost was recorded as a deemed dividend in additional paid-in capital due to the absence of retained earnings. This cost is included in modification of warrants and increased the net loss available to common shareholders on the consolidated statements of operations

During the quarter ended September 30, 2016, the Company issued a total of 2,572,216 shares of Common stock at $0.36 per share to several angel investors for aggregate proceeds of $0.9 million. The Company also issued 1,286,111 warrants at an exercise price of $0.42 per share, with an exercise period of 5 years.

On September 16, 2016, the Company converted a note in dispute and relevant accrued interest of $1.0 million into 2,222,222 shares of common stock. The fair value of the common shares on the issuance date was approximately $1.0 million. In addition, the Company issued 1,111,111 warrants at an exercise price of $0.45 with an exercise period of 5 years, commencing 6 months after issuance. The fair value of the warrants was approximately $0.4 million using a Black-Scholes model at the date of issuance related to the conversion of note and accrued interest. The total loss on extinguishment of debt recorded on the statement of operations was approximately $0.4 million related to this conversion.

Fourth Quarter of 2016

During the quarter ended December 31, 2016, the Company issued 28,575,000 shares of common stock at $0.35 per share, and warrants to purchase an additional 14,287,500 shares of Common Stock at an exercise price of $0.35 per share with five years term through a registered direct offering. The Company received net proceeds of approximately $9.2 million, after deducting aggregate placement agent fees and attorneys' fees of approximately $0.8 million.

In October 2016 and November 2016, the Company issued a total of 2,518,687 shares of Common stock at a weighted average price of $0.53 per share to several angel investors for aggregate proceeds of $1.3 million. The Company also issued 1,259,345 warrants at a weighted average exercise price of $0.51 per share, with an exercise period of 5 years.

On December 22, 2016, the Company issued 1,285,714 shares of common stock at $0.35 and warrants to purchase an additional 642,857 shares of Common Stock at an exercise price of $0.35 per share with a five-year term to Jerry Jasinowski, who was appointed to the Board of Directors in April 2012. The Company received proceeds of $450,000.

Total warrants issued from direct offerings and private placement have value of approximately $4.2 million, see FN 4 for more details regarding valuation.

During the quarter ended December 31, 2016, the Company issued a total of 60,000 shares of Common stock at $0.49 per share to several scientific board members as share-based compensation. The Company recorded the $29,400 expense in research and development for the year ended December 31, 2016.

During the quarter ended December 31, 2016, the Company converted accrued interest associated with a note in dispute that was originally issued in 2011. The accrued interest balance as of December 13, 2016 was $1.5 million. In order to extinguish this accrued interest liability, the Company issued 2,812,174 shares of common stock and 1,406,086 warrants at a weighted average exercise price of $0.50 with an exercise period of 5 years, commencing 6 months after issuance. The fair value of the common shares on the issuance date was approximately $1.5 million. The fair value of the warrants on the issuance date was approximately $0.6 million using a Black-Scholes model, see FN 4 for more details regarding valuation.

The total loss on the extinguishment of accrued interest was approximately $0.7 million during the three months ended December 31, 2016. This amount was recorded as a component of loss from extinguishment of debt on the consolidated statements of operations.

During the quarter ended December 31, 2016, the Company issued 1,000,000 shares of common stock to convert $480,000 debt which was assigned by Cognate.

Stock Purchase Warrants

The following is a summary of warrant activity for the years ended December 31, 2017 and 2016 (dollars in thousands, except per share data):

	Number of Warrants	Weighted Average Exercise Price	Remaining Contractual Term
Outstanding as of January 1, 2016	**27,267**	**$ 4.40**	**2.70**
Warrants granted in a registered direct offering	14,485	2.70	
Warrants granted to Cognate	35,504	0.69	
Warrants canceled by Cognate	(37,147)	0.35	
Warrants exercised for cash	(15,357)	0.53	
Warrants granted	35,287	0.43	
Warrants expired and cancellation	(1,761)	9.36	
Outstanding as of December 31, 2016	**58,278**	**1.78**	**3.86**
Warrants granted	362,240	0.36	
Warrants exercised for cash	(24,558)	0.11	
Cashless warrants exercise	(16,071)	0.20	
Warrants expired and cancellation	(59,483)	1.40	
Outstanding as of December 31, 2017*	**320,406**	**$ 0.50**	**2.62**

* Approximately 200 million warrants were subject to limitation on exercisability and were not exercisable as of December 31, 2017.

12. Variable Interest Entities

Variable Interest Entities ("VIEs") are entities in which equity investors lack the characteristics of a controlling financial interest. VIEs are consolidated by the primary beneficiary. The primary beneficiary is the party who has both the power to direct the activities of a VIE that most significantly impact the entity's economic performance and an obligation to absorb losses of the entity or a right to receive benefits from the entity that could potentially be significant to the entity.

After the assumption of $5.7 million in debt originally incurred by Cognate in October 2016 and the Company's reverse of $3.8 million of Cognate invoices that were previously paid in common stock and warrants in October 2016, the Company has an implicit variable interest in Cognate to potentially fund Cognate's losses (if Cognate incurs losses). The Company determines whether it is the primary beneficiary of Cognate upon its initial involvement and the Company reassess whether it is the primary beneficiary of Cognate on an ongoing basis. The determination of whether the Company is the primary beneficiary of Cognate is based upon the facts and circumstances and requires significant judgment. The Company's considerations in determining Cognate's most significant activities and whether the Company has power to direct those activities include, but are not limited to, Cognate's purpose and design and the risks passed through to investors, the voting interests of Cognate, management, service and/or other agreements of Cognate, involvement in Cognate's initial design and the existence of explicit or implicit financial guarantees. As of December 31, 2016, the Company did not have the power over the most significant activities (control of operating decisions) and therefore did not meet the "power" criteria of the primary beneficiary.

The maximum exposure to loss is limited to the notional amounts of the implicit variable interest in Cognate. The Company has no current plans to provide any support additional to that which is noted above. Therefore, the maximum exposure to loss from its implicit interest is limited to $4.5 million as of December 31, 2017; which is the shutdown fee the Company must pay to terminate their relationship with Cognate.

13. Commitments and Contingencies

Contingent Payment to Cognate BioServices

Under the January 17, 2014 DCVax®-L Manufacturing Services Agreement and the DCVax-Direct Agreement, a new set of provisions apply going forward to any shut down or suspension. Under these provisions, the Company will be contingently obligated to pay certain fees to Cognate BioServices (in addition to any other remedies) if the Company shuts down or suspends its DCVax-L program or DCVax-Direct program. For a shut down or suspension of the DCVax-L program, the fees will be as follows:

- Prior to the last dose of the last patient enrolled in the Phase III trial for DCVax®-L or After the last dose of the last patient enrolled in the Phase III clinical trial for DCVax®-L but before any submission for product approval in any jurisdiction or after the submission of any application for market authorization but prior to receiving a marketing authorization approval: in any of these cases, the fee shall be $3 million.

- At any time after receiving the equivalent of a marketing authorization for DCVax®-L in any jurisdiction, the fee shall be $5 million.

For a shut down or suspension of the DCVax-Direct program, the fees will be as follows:

- Prior to the last dose of the last patient enrolled in the Phase I/II trial for DCVax®-Direct, the fee shall be $1.5 million.
- After the last dose of the last patient enrolled in the Phase I/II clinical trial for DCVax®-Direct but before the initiation of a Phase III trial the fee shall be $2.0 million.
- After initiation of a phase III trial but before submission of an application for market authorization in any jurisdiction or after the submission of an application for market authorization but prior to receiving a market authorization approval: in each of these cases, the fee shall be $3.0 million.
- At any time after receiving the equivalent of a marketing authorization for DCVax®-Direct in any jurisdiction the fee shall be $5.0 million.

As of December 31, 2017, no shut-down or suspension fees were triggered.

While our DCVax programs are ongoing, the Company is required to pay certain fees for dedicated production suites or capacity reserved exclusively for DCVax production, and pay for a certain minimum number of patients, whether or not we fully utilize the dedicated capacity and number of patients.

Operating Lease

On July 31, 2012, the Company entered into a non-cancelable operating lease for 7,097 square feet of office space in Bethesda, Maryland, which expired on March 31, 2018. Rent expense for 2017 and 2016 amounted to $0.3 million and $0.3 million, respectively. On March 30, 2018, the Company entered a renewal agreement to extend the lease until March 31, 2019. The monthly rent expense will be $27,000.

On October 28, 2013, the Company entered into a non-cancelable operating lease for 4,251 square feet of office space in Germany, which expires in December 2017. The lease contains an option with 3 years extension, and a 6 month in advance notice is required. On November 15, 2017, the Company entered a renewal agreement to extend the lease until December 31, 2018.

On December 30, 2017, the Company assumed Cognate Bioservices, GmbH lease agreement and entered a settlement with its lessor. The Company agreed to pay lessor approximately $479,000 in 6 installment payment in 2018.

On March 26, 2016, the Company entered into a non-cancelable operating lease for 505 square feet of office space in London, which expires in March, 2017. On December 19, 2016, the Company entered a renewal agreement to extend the office lease for an additional 1 year until March, 2018. Rent expense in the U.K. for the year ended December 31, 2017 and 2016 was approximately $151,000 and $120,000, respectively. The U.K. office lease was ended on March 12, 2018 and no further renewal agreement was entered.

On October 10, 2017, the Company entered into an agreement to lease to Commodities Centre, a commodity storage and distribution firm domiciled in the U.K., an existing approximately 275,000 square foot warehouse building on the Company's property in Sawston, U.K. The term of the lease will be five years, with the potential for the tenant to discontinue at three years and five months. The tenant will undertake at least $1.1 million of repairs and improvements to the building in return for five and a half months of free rent (which began upon execution of the lease and ends on March 24, 2018). Thereafter, the tenant will pay rent at an annualized rate of approximately $1.0 million for the first year, and thereafter rent at an annualized rate of approximately $1.4 million for each year or partial year for the rest of the lease term, plus VAT. The tenant will also pay a proportional share of the common costs and the insurance costs for the overall site. The tenant will pay for its own utilities and other costs for use of the warehouse.

The Company's future minimum lease payments are as follows as of December 31, 2017 (in thousands):

	Office Leases			
	U.S.	Germany	U.K.(1)	Total
2018	$ 325	$ 21	$ 765	$ 1,111
2019	81	-	422	503
Total	$ 406	$ 21	$ 1,187	$ 1,644

(1) Includes $723,000 and $422,000 of minimum lease payments under a lease where Advent is the lessee in 2018 and 2019, respectively. Although the Company is not a party to this lease, Advent is charging the Company its share of the cost of this lease on a monthly basis and therefore the Company is including the minimum lease payments in the above table.

Derivative and Class Action Litigation

On June 19, 2015, two purported shareholders filed a lawsuit in the Delaware Court of Chancery, captioned *Tharp, et al. v. Cognate, et al.*, C.A. 11179-VCG (Del. Ch. filed June 19, 2015), purportedly suing on behalf of a class of similarly situated shareholders and derivatively on behalf of the Company. The lawsuit named Cognate BioServices, Inc., Toucan Partners, Toucan Capital Fund III, our CEO Linda Powers and the individuals who then served on the Company's Board of Directors as defendants, and named the Company as a "nominal defendant" with respect to the derivative claims. The complaint generally challenged certain transactions between the Company and Cognate and the Toucan entities, in which Cognate and the Toucan entities provided services and financing to the Company, or agreed to the conversion of debts owed to them by the Company into equity. The complaint sought unspecified monetary relief for the Company and the plaintiffs, and various forms of equitable relief, including disgorgement of allegedly improper benefits, rescission of the challenged transactions, and an order forbidding similar transactions in the future. After considerable litigation and negotiations, the parties reached an agreement to settle the case, along with the *Yonemura* case, discussed below. On October 17, 2017, the court entered a final order and judgment approving the settlement.

On November 19, 2015, a third purported shareholder filed a lawsuit in the U.S. District Court for the District of Maryland, captioned *Yonemura v. Powers, et al.*, No. 15-03526 (D. Md. filed Nov. 19, 2015), claiming to sue derivatively on behalf of the Company. The complaint named the individuals who then served on the Company's Board of Directors, Toucan Capital Fund III, L.P., Toucan General II, LLC, Toucan Partners, LLC, and Cognate as defendants, and named the Company as a nominal defendant. The complaint generally challenged the same transactions disputed in the Delaware case, claiming that the Company purportedly overcompensated Cognate and Toucan for certain services and loans in payments of stock, and that the Company's CEO, Ms. Powers, benefited from these transactions with Cognate and Toucan, which she allegedly owns or controls. The complaint asserted that the alleged overpayments unjustly enriched Ms. Powers, Toucan, and Cognate; that the Company's directors breached their fiduciary duties of loyalty and good faith to the Company by authorizing the payments to Cognate; and that Ms. Powers, Cognate, and Toucan aided and abetted the directors' breaches of fiduciary duties. The plaintiff sought an award of unspecified damages to the Company and equitable remedies, including disgorgement by Ms. Powers, Toucan, and Cognate of the allegedly improper benefits received as a result of the disputed transactions. The plaintiff also sought costs and disbursements associated with bringing suit, including attorneys' fees and expert fees. As discussed above, the parties agreed to settle the *Yonemura* case along with the *Tharp* case. On November 22, 2017, the parties submitted a joint stipulation of voluntary dismissal, and on November 27, 2017, the court entered an order dismissing the case.

On November 28, 2016, a purported shareholder filed a lawsuit in the Circuit Court for Montgomery County, Maryland, captioned *Wells v. Powers, et al.*, Case No. 427353-V (Md. Cir. Ct., Mont. Cty. filed Nov. 28, 2016), claiming to sue derivatively on behalf of the Company. The complaint named six current and former members of the Company's Board of Directors, Toucan Partners, LLC, Toucan Capital Fund III, L.P., Toucan Partners, LP (a non-existent entity), Toucan General II, LLC, and Cognate as defendants, and named the Company as a nominal defendant. The complaint largely challenged the same transactions disputed in the two cases discussed above, claiming that the Company overcompensated Cognate and Toucan for certain services and loans. It asserted that, by authorizing those transactions, the individual defendants breached their fiduciary duties to the Company, abused their ability to control and influence the Company, and engaged in gross mismanagement of the Company's business and assets. In addition, the complaint claimed that the individual defendants are liable to the Company for misleading its investors and financiers. The complaint claimed that the individual defendants were unjustly enriched by receiving compensation while the Company's stock price was allegedly artificially inflated; that Ms. Powers, Toucan, and Cognate are "controlling" stockholders of the Company who breached their fiduciary duties to minority stockholders; that Ms. Powers, Toucan, and Cognate, benefited from these transactions due to their alleged "control"; that the alleged overpayments unjustly enriched Ms. Powers, Toucan, and Cognate; and that Toucan and Cognate aided and abetted the individual defendants in breaching their fiduciary duties. The plaintiff sought the award of unspecified damages to the Company; an order from the court directing the Company to reform its corporate governance and internal procedures; and equitable remedies, including restitution and disgorgement from defendants. The plaintiff also sought the costs and disbursements associated with bringing suit, including attorneys' fees, costs, and expenses. After considerable litigation and negotiations, the parties reached an agreement to settle the case. On January 3, 2018, the court entered a final order and judgment approving the settlement.

Therefore, all the foregoing litigation is now concluded.

U.S. Securities and Exchange Commission

As previously reported, the Company has received a number formal information requests (subpoenas) from the SEC regarding several broad topics that have been previously disclosed, including the Company's membership on Nasdaq and delisting, related party matters, the Company's programs, internal controls and the Company's Special Litigation Committee. Testimony of certain officers and third parties has been taken as well. The Company is cooperating with the SEC investigation and is hopeful that it is reaching its final stages.

Chardan Capital Markets v. Northwest Biotherapeutics, Inc.

On June 22, 2017, Chardan Capital Markets, LLC filed a lawsuit against the Company in the United District Court for the Southern District of New York, captioned *Chardan Capital Markets v. Northwest Biotherapeutics, Inc.*, 1:17-cv-04727-PKC. Chardan alleges that it provided capital placement agent services to the Company in December 2016 under a contract and that it has not been fully compensated for those services. Chardan further alleges that it provided additional services to the Company in March 2017 in anticipation of entering into a contract and that it received no compensation. The operative complaint asserts claims sounding in unjust enrichment, quantum meruit, and breach of contract, and seeks recovery in the amount of $496,000, plus interest and attorneys' fees and costs. The Company filed a motion to dismiss the complaint on December 1, 2017; Chardan filed its opposition brief on January 19, 2018; and the Company filed its reply brief on February 26, 2018. The Company's motion to dismiss remains pending.

14. Income Taxes

No provision was made for U.S. taxes on undistributed foreign earning as such earnings are considered to be permanently reinvested. It is not practicable to determine the amount of additional tax, if any that might be payable on those earnings if repatriated.

The tax effects of temporary differences and tax loss and credit carry forwards that give rise to significant portions of deferred tax assets and liabilities at December 31, 2017 and 2016 are comprised of the following (in thousands):

	As of December 31,	
	2017	**2016**
Deferred tax asset		
Net operating loss carryforward	$ 153,415	$ 204,106
Research and development credit carry forwards	15,426	14,911
Stock based compensation and other	9,814	17,106
Total deferred tax assets	178,655	236,123
Valuation Allowance	(178,655)	(236,123)
Deferred tax asset, net of allowance	$ -	$ -

The Company has identified the United States, Maryland, Germany and United Kingdom as significant tax jurisdictions.

At December 31, 2017, the Company had Federal and State net operating loss carry forwards for income tax purposes of approximately $153.4 million and unused research and development tax credits of approximately $15.4 million available to offset future taxable income and income taxes, respectively, expiring in 2018 through 2037. The Company has foreign net operating loss carry forwards of $26.2 million in various jurisdictions. The Company has not performed a detailed analysis to determine whether an ownership change under Section 382 of the IRC has occurred. The effect of an ownership change would be the imposition of an annual limitation on the use of net operating loss carryforwards attributable to periods before the change. Any limitation may result in expiration of a portion of the NOL or research and development credit carryforwards before utilization. The tax years 2014 through 2017 remain open to examination by federal agencies and other jurisdictions in which the Company operates.

During 2016 the Company reevaluated the pricing/deductibility of stock options granted and the value of warrants issued, resulting in the decrease in the potential future tax deduction from those instruments.

In assessing the realization of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the period in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and taxing strategies in making this assessment. In case the deferred tax assets will not be realized in future periods, the Company has provided a valuation allowance for the full amount of the deferred tax assets at December 31, 2017 and 2016.

The expected tax expense (benefit) based on the U.S. federal statutory rate is reconciled with actual tax expense (benefit) as follows:
(dollars in thousands)

	For the years ended	
	2017	**2016**
Statutory federal income tax rate	34.0%	34.0%
State taxes, net of federal tax benefit	4.0%	1.8%
Tax rate differential on foreign income	-0.4%	-2.3%
Derivative gain or loss and other	-1.2%	7.6%
Cancellation of shares	0.2%	-16.6%
Cancellation of warrants	-0.2%	-7.8%
Other permanent items and true ups	-8.6%	2.7%
R&D Credit	-0.7%	2.8%
Change in rate	-107.0%	0.0%
Change in valuation allowance	78.6%	-22.2%
Income tax provision (benefit)	0.0%	0.0%

	For the years ended	
	2017	2016
Federal		
Current	$ -	$ -
Deferred	(59,454)	(11,160)
State		
Current	-	-
Deferred	2,911	(1,427)
Foreign		
Current	-	-
Deferred	(924)	(5,189)
Change in valuation allowance	57,467	17,776
Income tax provision (benefit)	$ -	$ -

On December 22, 2017, legislation commonly known as the Tax Cuts and Jobs Act, or the Tax Act, was signed in to law. The legislation significantly changes U.S. tax law by, among other things, lowering corporate income tax rates, implementing a territorial tax system and imposing a repatriation tax on deemed repatriated earnings of foreign subsidiaries. The Tax Act permanently reduces the U.S. corporate income tax rate to 21% from the existing applicable rate of 34%, effective January 1, 2018. As a result, the Company has recorded a decrease to its deferred tax assets of $78.3 million and to valuation allowance of $78.3 million for the year ended December 31, 2017.

15. Subsequent Events

Public and Private Offering

Between January and April 2018, the Company sold approximately 0.3 million shares of Series A convertible preferred stock at a price of $1.70 per share and issued approximately 2.9 million Class D-1 Warrants exercisable at $0.22 per share for a period of 2 years for an aggregate of $0.5 million.

Between January and April 2018, the Company sold approximately 1.2 million shares of Series B convertible preferred stock at a price of $2.30 per share and issued approximately 12 million Class D-2 Warrants exercisable at $0.30 per share for a period of 2 years for an aggregate of $2.8 million.

Conversion of Preferred Stock

An aggregate of 6.5 million shares of Series A preferred stock and 0.4 million shares of Series B preferred stock were converted into approximately 69.6 million shares of common stock.

Debt Conversion

Between January and April 2018, approximately $1.7 million principal and $56,000 of accrued interest on certain notes were converted into approximately 5 million shares of common stock.

Warrants Exercised for Cash

Between January and April 2018, the Company issued approximately 6.8 million shares of common stock from the exercise of warrants with an exercise price from $0.22 to $0.30 for aggregate proceeds of $1.6 million.

Share-settled Debt

Between January and April 2018, the Company issued 4.3 million shares of common stock to the holder of the Company's share-settled debt as advance payment for future debt conversion.

Debt Offering to Related Parties

On March 14, 2018, the Company and its Chief Executive Officer, Linda F. Powers, entered into a note and loan agreement for a loan of $4.0 million by Ms. Powers to the Company. The Note is convertible into Series B Preferred Stock at $2.30 for one share of Series B Preferred Stock and ten Class D-2 Warrants (the "Note"), with half of the Class D-2 Warrants due and issuable when the loan was provided, and half of the Class D-2 Warrants due on a proportional basis in the event of conversion of some or all of the Note. Accordingly, the Company is issuing 8,695,652 Class D-2 Warrants to Ms. Powers. The Note bears interest at a rate of 10% per annum, and is repayable upon 15 days' notice from the holder (and no later than five years from the date of the Note). Each share of Series B Preferred Stock is convertible into 10 shares of common stock when shares of common stock are authorized and available. The Class D-2 Warrants are not currently exercisable, will expire five years after they become exercisable and have an exercise price of $0.30.

On March 19, 2018, the Company and Ms. Powers entered into an additional note and loan agreement for an additional loan of $400,000 by Ms. Powers to the Company. This additional note is convertible into Series B Preferred Stock and Class D-2 Warrants on the same terms as the Note issued on March 14, 2018.

Warrant Adjustments

The Company and certain investors agreed to modify the terms of outstanding warrants held by such investors. Pursuant to the agreements, the investors agreed not to exercise their warrants before a vote of the shareholders of the Company to increase the authorized capital stock of the Company is held or a predetermined date of either June 1, 2018 or four months from the date of the agreement. The modifications generally provided for a one-year extension to the expiration date of such warrants and a decrease in the exercise price of the warrants.

From March 1 through March 7, 2018, the Company modified 92.9 million warrants, with new expiration dates ranging between September 15, 2018 and June 30, 2022 and new exercise prices ranging between $0.24 and $2.50. Certain of the warrants retained their original exercise prices ranging as low as $0.175.

From March 7 through March 12, 2018, the Company modified additional 31.1 million warrants, with new expiration dates not exceeding one additional year and ranging from April 16, 2019 to August 1, 2023, and new exercise prices ranging between $0.24 and $0.55.

Stock Options Granted

On January 14, 2018, the Board completed the process for the implementation of option awards for management and employees exercisable for approximately 12% of the authorized shares (the "January Options"). The January Options are subject to vesting requirements. 50% of the Options vested on the grant date, in recognition of performance rendered during the previous 6 years, and 50% will vest over a succeeding 24-month period in equal monthly installments, subject to acceleration upon the occurrence of certain achievement milestones.

The options awarded to Linda Powers will be exercisable for up to 29.4 million Shares. The options awarded to Les Goldman will be exercisable for up to 19.6 million Shares. In the aggregate, the Options for other Company personnel will be exercisable for up to approximately 9 million Shares. The January Options will be exercisable at a price of $0.23 per share and have 10 years life.

On February 26, 2018, the disinterested members of the Board approved option awards for the independent Directors, subject to shareholder approval at a Special Meeting (the "February Options"). The February Options are not currently exercisable and will become exercisable only when shares of common stock are available for issuance upon exercise.

The February Options are subject to vesting requirements. 50% of the Options will be vested on the grant date, in recognition of the directors' performance on the Board and Board Committees, as well as in helping to support the Company's operations, over the previous 6 years in the case of two of the independent directors, and over the previous 2 years in the case of the third independent director. The remaining 50% of the Options will vest over a succeeding 24-month period in equal monthly installments, subject to acceleration upon the occurrence of certain achievement milestones.

The independent directors' Options will be exercisable at a price of $0.30 per share: a price above the market price of the Company's common stock at the time of the awards, above the $0.23 price per share being paid during December through February for Series B preferred shares by unrelated investors (who also received 100% warrants), and above the exercise price of $0.23 of the options awarded to Company management in January 2018 as previously reported. The exercise period will be 10 years from the date the Options become exercisable.

The options awarded to Mr. Jerry Jasinowski will be exercisable for up to 4,900,000 shares of common stock. The Options awarded to Dr. Navid Malik will be exercisable for up to 9,065,000 shares of common stock. The Options awarded to Ambassador Cofer Black will be exercisable for up to 1,715,000 shares of common stock.

EXHIBIT 21.1

Subsidiaries of the Registrant

Name:	Jurisdiction
Aracaris, Ltd.	United Kingdom
Aracaris Capital, Ltd.	United Kingdom
NW Bio Gmbh	Germany
NW Bio Europe S.A.R.L.	Switzerland (closed June 2015)

EXHIBIT 23.1

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM'S CONSENT

We consent to the incorporation by reference in the Registration Statement of Northwest Biotherapeutics, Inc. on Form S-3 [File No. 333-213777] of our report dated April 17, 2018, which includes an explanatory paragraph as to the Company's ability to continue as a going concern, with respect to our audits of the consolidated financial statements of Northwest Biotherapeutics, Inc. and Subsidiaries as of December 31, 2017 and 2016 and for each of the two years in the period ended December 31, 2017, which report is included in this Annual Report on Form 10-K of Northwest Biotherapeutics, Inc. for the year ended December 31, 2017.

/s/ Marcum LLP

Marcum LLP
New York, NY
April 17, 2018

EXHIBIT 31.1

SECTION 302 CERTIFICATION

I, Linda F. Powers, certify that:

(1) I have reviewed this annual report on Form 10-K of Northwest Biotherapeutics, Inc.;

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

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

(4) I am responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)), and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15 (f)), for the registrant and have:

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

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

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

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

(5) I have disclosed, based on my most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's Board of Directors (or persons performing the equivalent functions):

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

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

Date: April 17, 2018

By: /s/ Linda F. Powers
Name: Linda F. Powers
Title: President and Chief Executive Officer
Principal Executive Officer
Principal Financial and Accounting Officer

EXHIBIT 32.1

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

In connection with the annual report of Northwest Biotherapeutics, Inc. (the "Company") on Form 10-K for the year ended December 31, 2017, as filed with the Securities and Exchange Commission (the "Report"), I, Linda F. Powers, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

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

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

Date: April 17, 2018

By: /s/ Linda F. Powers
Name: Linda F. Powers
Title: President and Chief Executive Officer
Principal Executive Officer
Principal Financial and Accounting Officer

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