IMMUNOCELLULAR THERAPEUTICS, LTD.

FORM 10-K
(Annual Report)

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

FORM 10-K

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

For the fiscal year ended December 31, 2016
or

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

For the transition period from to

Commission file number: 001-35560

IMMUNOCELLULAR THERAPEUTICS, LTD.
(Exact name of registrant as specified in its charter)

Delaware	**93-1301885**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**
23622 Calabasas Road, Suite 300 Calabasas, California	**91302**
(Address of principal executive offices)	**(Zip code)**

Registrant's telephone number, including area code: (818) 264-2300

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

Title of each class	**Name of each exchange on which registered**
Common Stock, $0.0001 par value	**NYSE MKT**

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

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

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange 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 Exchange Act during the past 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. ☒ Yes ☐ No

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

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

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

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

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

The aggregate market value of the common stock held by non-affiliates of the registrant as of June 30, 2016 was approximately $21,419,090.

There were 3,459,859 shares of the registrant's common stock issued as of **February 28, 2017** .

Documents incorporated by reference:

Portions of the registrant's Proxy Statement for the 2017 Annual Meeting of Stockholders are incorporated herein by reference in Part III of this Annual Report on Form 10-K to the extent stated herein. The proxy statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2016 .

Table of Contents
Form 10-K

"SAFE HARBOR" STATEMENT

From time to time, we make oral and written statements that may constitute "forward-looking statements" (rather than historical facts) as defined in the Private Securities Litigation Reform Act of 1995 or by the Securities and Exchange Commission (the "SEC") in its rules, regulations and releases, including Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). We desire to take advantage of the "safe harbor" provisions in the Private Securities Litigation Reform Act of 1995 for forward-looking statements made from time to time, including the forward-looking statements made in this Annual Report, as well as those made in our other filings with the SEC.

All statements in this Annual Report, including under the captions "Business," "Risk Factors," and "Management's Discussion and Analysis of Financial Condition and Results of Operations," other than statements of historical fact are forward-looking statements for purposes of these provisions. Examples of these statements include, but are not limited to, our current views with respect to our business strategy, business plan and research and development activities; the progress of our product development programs, including clinical testing and the timing of commencement and results thereof; our research and development expenses; our future financial results and sufficiency of our cash resources and need for additional capital. These statements include forward-looking statements both with respect to us, specifically, and the biotechnology industry, in general. In some cases, forward-looking statements can be identified by the use of terminology such as "may," "will," "expects," "plans," "anticipates," "estimates," "potential" or "could" or the negative thereof or other comparable terminology. Although we believe that the expectations reflected in the forward-looking statements contained herein are reasonable, there can be no assurance that such expectations or any of the forward-looking statements will prove to be correct, and actual results could differ materially from those projected or assumed in the forward-looking statements.

All forward-looking statements involve inherent risks and uncertainties, and there are or will be important factors that could cause actual results to differ materially from those indicated in these statements. We believe that these factors include, but are not limited to, those factors set forth in this Annual Report under the captions "Business," "Risk Factors," and "Management's Discussion and Analysis of Financial Condition and Results of Operations," all of which you should review carefully. If one or more of these or other risks or uncertainties materialize, or if our underlying assumptions prove to be incorrect, actual results may vary materially from what we anticipate. Please consider our forward-looking statements in light of those risks as you read this Annual Report. Except as required by law, we undertake no obligation to publicly update or review any forward-looking statement, whether as a result of new information, future developments or otherwise.

PART I.

Throughout this Annual Report, the terms "we," "us," "our," "our company," "Company" and "the Registrant" refer to ImmunoCellular Therapeutics, Ltd., a Delaware corporation and its subsidiaries.

Item 1. Business

ImmunoCellular Therapeutics, Ltd. is a clinical-stage biotechnology company that is developing immune-based therapies for the treatment of cancers. Immunotherapy is an emerging approach to treating cancer in which a patient's own immune system is stimulated to target tumor antigens, which are molecular signals that the immune system uses to identify foreign bodies. While some other cancer immunotherapies target only a single cancer antigen, our technology can elicit an immune response against several antigens. Our clinical stage cancer immunotherapy programs are also distinguished by the fact that they target cancer stem cells (CSCs), which are the primary drivers of tumor growth and disease recurrence. Our most advanced product candidate, ICT-107, recently began phase 3 testing in which we anticipate randomizing approximately 542 patients at approximately 120 clinical sites in the U.S., Canada and Europe. In addition, we have a portfolio of other potential therapeutic immunotherapies using our proprietary approach to treating cancer.

ICT-107, our lead product candidate, is a dendritic cell (DC) immunotherapy for the treatment of newly diagnosed glioblastoma multiforme (GBM), the most common and lethal type of brain cancer. ICT-107 is designed to activate a patient's immune system to target six different tumor-associated antigens. ICT-107 has completed phase 2 testing with results reported in December 2013. Additional updated results were reported in June 2014 and November 2014. In November 2015, overall survival (OS) was additionally updated and reported. The phase 2 clinical trial was designed as a double-blind, placebo-controlled (2:1 randomized), multicenter evaluation of the safety and efficacy of ICT-107 in patients with newly diagnosed GBM. From January 2011 until September 2012, 124 patients were randomized to standard of care treatment plus ICT-107 or standard of care plus placebo (i.e. control). The most recent results are summarized in Table 1.

Table 1

Overall Survival*		**Median Overall Survival - in Months**				
Population	**Patients Randomized**	**Treatment Group**	**Placebo Group**	**Difference**	**P Value**	**HR Ratio**
Intent to treat (ITT)	124	18.3	16.7	1.6	0.436	0.846
Per Protocol (PP) HLA-A2						
MGMT Methylated	31	37.7	23.9	13.8	0.645	0.800
MGMT Unmethylated	38	15.8	11.8	4.0	0.326	0.704

Progression Free Survival*		**Median Progression Free Survival - in Months**				
Population	**Patients Randomized**	**Treatment Group**	**Placebo Group**	**Difference**	**P Value**	**HR Ratio**
ITT	124	11.4	10.1	1.3	0.033	0.640
PP HLA-A2						
MGMT Methylated	31	24.1	8.5	15.6	0.004	0.257
MGMT Unmethylated	38	10.5	6.0	4.0	0.364	0.720

* Overall survival data from October 2015; progression free survival from October 2014.

As reported in November 2015, ICT-107 treated patients had a numerical advantage in median OS of 1.6 months more than control patients in the intent-to-treat (ITT) population but the difference in survival between ICT-107 and control treated patients (the primary efficacy endpoint of the trial) did not reach statistical significance (p-value = 0.44; Hazard Ratio = 0.85). For Progression-Free Survival (PFS), an important secondary efficacy endpoint, the most updated results were reported in November 2014 when ICT-107 treated patients had a 1.3 month advantage in median PFS compared with control treated patients in the ITT population. This difference in PFS between ICT-107 and control treated patients reached statistical significance (p-value = 0.03; Hazard Ratio = 0.64). ICT-107 was generally well tolerated, with no imbalance in adverse events between the treated and control groups.

Patients in the phase 2 study were HLA-A1, A2, or dual A1/A2. HLA type refers to a person's human leukocyte antigen status which corresponds to a family of genes that regulate the immune system. Though the ICT-107 immunotherapy is designed for all three of these HLA types, the most benefit and best immune responses were observed in patients who were HLA-A2 positive (about 50% of the GBM population in the US and Europe). Thus, the phase 3 includes only patients who are

HLA-A2 positive. We analyzed HLA-A2 positive patients according to their MGMT gene status (unmethylated or methylated) which is a known predictor of responsiveness to standard of care chemotherapy. MGMT is a gene involved with DNA repair. As the standard of care chemotherapy in GBM works by damaging DNA, an active repair mechanism diminishes or precludes benefit from chemotherapy. MGMT unmethylated tumor cells can repair DNA damage while MGMT methylated cells cannot. While the subgroups we analyzed were small in size, and not powered to show statistical significance, the numeric advantages in favor of the ICT-107 treated patients were shown to be large and potentially clinically meaningful. Median OS for the HLA-A2 methylated MGMT per protocol (PP) population was 37.7 months for the ICT-107 patients and 23.9 months for the control group, representing a 13.8 month median OS numeric benefit for the ICT-107 treated group while not achieving statistical significance (p-value = 0.65; Hazard ratio = 0.80). Median OS for the HLA-A2 unmethylated MGMT PP population was 15.8 months for ICT-107 patients and 11.8 months for the control group, representing a 4 month median OS numeric benefit for the ICT-107 treated group while not achieving statistical significance (p-value = 0.33; Hazard Ratio = 0.70).

We decided to pursue phase 3 testing of ICT-107 in HLA-A2 patients on the basis of the updated phase 2 ICT-107 trial data, post-phase 2 discussions with U.S. and European regulators and consultation with GBM key opinion leaders.

In addition to focusing only on HLA-A2 patients, we made several changes to the phase 3 protocol based on the phase 2 results and analysis.

- An anergy test was added to patient screening. This test seeks to identify patients with a properly functioning immune system, which is an important consideration when testing an immune-based therapy.
- More doses are included in the phase 3 protocol. Patients are dosed until they progress or run out of treatment or placebo. In the first year, after standard of care surgery and chemoradiation, patients receive four induction doses in the first month and then monthly maintenance doses thereafter. The phase 3 design now includes 15 doses in the first year if the patient does not progress compared to seven doses in the phase 2 design. The intent is to give patients the opportunity to mount an immune response to treatment.
- An updated progression assessment is included. Progression will now be assessed using the iRANO criteria. This methodology is an update from the RANO criteria utilized in the phase 2 trial. Because dosing stops once a patient has progressed, accurate progression assessment is important for keeping patients on the trial as long as possible.
- Monocytes will be used as the control in phase 3. In the phase 2 trial, activated dendritic cells were used as the control. These cells are potentially more immunogenic than the precursor monocyte cells.

The phase 3 design was submitted to the U.S. FDA and we received Special Protocol Assessment (SPA) agreement in August 2015. The Company submitted a protocol amendment to FDA in December 2016 and plans to submit to regulatory agencies in Canada and the European countries participating in the trial during the first quarter of 2017. This amendment is designed to improve the speed of randomization from the original protocol by resolving certain issues identified in the first several months of operating the trial. In February 2017, the FDA responded to our protocol amendment, indicating that in order to proceed with the protocol amendment, we would not be able to take advantage of the benefits of the previously granted SPA. The FDA did not indicate that the trail would be placed on clinical hold if we implement the amended protocol and we intend to work with the FDA in an effort to clarify the rationale for the protocol amendment and attempt to maintain the SPA. In any event, based on the response we plan to implement the amended protocol and proceed with the Phase 3 trial of ICT-107, with or without the SPA in effect, as the FDA further indicated that we could re-propose a SPA for the amended study.

Patient screening began in November 2015 in the U.S. We anticipate that it will take until mid-2019 to randomize approximately 542 patients and that the trial will complete by about mid-2021. The final analysis will be performed after at least 387 OS events have been observed and at least 50% of subjects with the methylated MGMT gene have died. As of December 31, 2016, we had 64 active trial sites in the U.S. and one in Canada. Furthermore, 293 patients had been screened, 37 of whom had successful manufacturing runs to produce ICT-107 and control. The first patient in the trial was treated on June 7, 2016 and 14 patients have been randomized to date. In addition, our initial clinical trial applications have been approved by regulatory authorities in the Netherlands, the U.K. and Spain, and we are in discussions with regulatory authorities in Austria, Switzerland, Germany, Italy and France.

There are currently two interim analyses to be conducted by the Independent Data Monitoring Committee (DMC). The first is a futility assessment that will occur when 30% of the required OS events have been observed. We estimate that the triggering condition for this assessment will occur approximately mid-2019. The second is an efficacy assessment that will occur when 67% of the required OS events have been observed. We estimate that the triggering condition for this assessment will occur approximately in the first quarter of 2020. The trial is being conducted in the U.S., Canada, and Europe and we are working with the major cancer cooperative groups in each region to ensure sufficient and timely access to qualifying patients.

In addition to ICT-107, we are also developing two other therapeutic DC immunotherapies: ICT-140 for ovarian cancer and ICT-121 for recurrent GBM. ICT-140 targets seven tumor-associated antigens expressed on ovarian cancer cells.

Some of the antigens utilized in ICT-140 were also used in ICT-107. We filed an investigational new drug (IND) application for ICT-140 at the end of 2012 and the IND was allowed by the FDA in January 2013. We subsequently modified the design of the trial and amended the IND to reflect these changes in May 2013 and September 2014. These amendments were allowed by the FDA shortly after the submissions. During the interim time period, we upgraded our generalized DC immunotherapy manufacturing process to bring it to a phase 3 and commercial ready state. We plan to use this improved process to manufacture clinical supplies for the ICT-140 trial. Currently, we are holding the initiation of this trial until we can find a partner to share expenses or until we have secured sufficient financial resources to complete the ICT-107 phase 3 program.

ICT-121 specifically targets CD133, a CSC marker that is overexpressed in a wide variety of solid tumors, including ovarian, pancreatic, and breast cancers. We began screening patients in September 2013 for a single-site phase 1 trial in recurrent GBM. Originally, it was our intention to enroll 20 patients at one site. However, during 2014, we determined that enrollment could be accelerated if additional sites were added to the study. In 2015 we added five sites and made modifications in the screening criteria to facilitate enrollment. As of July 21, 2016, the trial was fully enrolled. The trial will be closed in the first quarter of 2017 and the data will be available by mid-year. Because this phase 1 trial is unblinded, trial endpoints can be evaluated on a preliminary basis as the trial moves toward completion. Only after the trial has completed and the data have been collected, validated, and delivered to the Company will results be final. As of December 31, 2016, eleven deaths have occurred within the group of 20 enrolled patients. The current median survival is 15 months although this statistic could change as the trial continues. There is no control group in this phase 1 trial. However, this median survival time compares favorably to historical control values from other trials. In particular, the Celldex trial of Rindopepimut in recurrent glioblastoma reported a median survival of 11.6 months, which was statistically better than the in-trial control group median of 9.3 months.

In September 2014, we licensed from the California Institute of Technology (Caltech) the exclusive rights to novel technology for the development of Stem-to-T-cell immunotherapies for the treatment of cancer. The technology originated from the labs of David Baltimore, Ph.D., Nobel Laureate and President Emeritus at Caltech, and utilizes the patient's own hematopoietic stem cells to create antigen-specific killer T cells to treat cancer. We plan to utilize this technology to expand and complement our DC-based cancer immunotherapy platform, with the goal of developing new immunotherapies that kill cancer cells in a highly directed and specific manner and that can function as monotherapies or in combination therapy approaches.

Caltech's technology potentially addresses the challenge, and limitation, that TCR (T cell receptor) technologies have faced of generating a limited immune response and having an unknown persistence in the patient's body. We believe that by inserting DNA that encodes T cell receptors into hematopoietic stem cells rather than into T cells, the immune response can be transformed into a durable and more potent response that could effectively treat solid tumors. This observation has been verified in animal models by investigators at Caltech and the National Cancer Institute.

The first phase in the research program for this Stem-to-T-Cell technology is to identify the genetic sequence of a TCR that will become the basis for the product development program. In November 2015, we entered into a sponsored research agreement with The University of Texas MD Anderson Cancer Center with the goal of identifying a TCR sequence. In addition, in 2015 we acquired an option from Stanford University to evaluate certain technology related to the identification of TCRs that could prove useful in supporting our Stem-to-T-Cell research efforts. In March 2017, we announced that a TCR sequence for our Stem-to-T-Cell program is available.

In January of 2016, we entered into a sponsored research agreement with the University of Maryland, Baltimore (UMB). As part of this collaboration, UMB researchers are undertaking three projects to explore potential enhancements to our dendritic cell and Stem-to-T-Cell immunotherapy platforms.

Autologous cell-based therapies must be manufactured separately for each patient. Consequently, the manufacturing costs are typically higher than other types of therapies that are not patient-specific. Our DC immunotherapy manufacturing process produces multiple doses for a patient from a single manufacturing run utilizing a single apheresis from the patient. Each manufacturing run takes three days to complete. In addition, the immunotherapy is stored frozen in liquid nitrogen making the logistics of shipping and administration to the patient easier than that for cell therapies that must be shipped fresh and administered to the patient within hours of manufacture.

While we believe that we have a promising technology portfolio of multiple clinical-stage candidates, we do not currently anticipate that we will generate any revenues from either product sales or licensing in the foreseeable future. We have financed the majority of our prior operations through the sales of securities and believe that we may access grants and awards to supplement future sales of securities. On September 18, 2015, the Company received an award in the amount of $19.9 million from the California Institute of Regenerative Medicine (CIRM) to partially fund our phase 3 trial of ICT-107. The award provided for a $4.0 million project initial payment, which was received during the fourth quarter of 2015, and up to $15.9 million in future milestone payments that are primarily dependent on patient enrollment and randomization in the ICT-107 phase 3 trial. In June 2016, the terms of the award from CIRM were amended to (i) increase the project initial payment by $1.5 million, which we received on July 18, 2016, and (ii) reduce the potential future milestone payments by a

corresponding $1.5 million. The potential total amount of the award from CIRM remains at $19.9 million. Under the terms of the CIRM award, we are obligated to share future ICT-107 related revenue with CIRM. The percentage of revenue sharing is dependent on the amount of the award we receive and whether the revenue is from product sales or license fees. The maximum revenue sharing amount we may be required to pay to CIRM is equal to nine times the total amount awarded and received. We have the option to decline any and all amounts awarded by CIRM. As an alternative to revenue sharing, we have the option to convert the award to a loan, which option must be exercised on or before ten (10) business days after the FDA notifies us that it has accepted our application for marketing authorization. In the event we exercise our right to convert the award to a loan, we will be obligated to repay the loan within ten (10) business days of making such election, including interest at the rate of the three-month LIBOR rate (0.92% as of December 31, 2016) plus 25% per annum.

The estimated cost of completing the development of any of the current or potential immunotherapy candidates will require us to raise additional capital, generate additional capital from the uncertain exercise of outstanding warrants, or enter into collaboration agreements with third parties. There can be no assurances that we will be able to obtain any additional funding, or if such funding is available, that the terms will be favorable. In addition, collaborations with third parties may not be available to us and may require us to surrender rights to many of our products, which may reduce the potential share of returns in any licensed products. If we are unable to raise sufficient capital or secure collaborations with third parties, we will not be able to further develop our product candidates.

Company Information

We filed our original Certificate of Incorporation with the Secretary of State of Delaware on March 20, 1987 under the name Redwing Capital Corp. On June 16, 1989, we changed our name to Patco Industries, Ltd. and conducted an unrelated business under that name until 1994. On January 30, 2006, we amended our Certificate of Incorporation to change our name to Optical Molecular Imaging, Inc. in connection with our merger on January 31, 2006 with Spectral Molecular Imaging, Inc. The acquisition was accounted for as a reverse merger, with Spectral Molecular Imaging deemed to be the accounting acquirer and Optical Molecular Imaging deemed to be the legal acquirer. As such, the consolidated financial statements herein reflect the historical activity of Spectral Molecular Imaging since its inception on February 25, 2004. On November 2, 2006, we amended our Certificate of Incorporation to change our name to ImmunoCellular Therapeutics, Ltd. to reflect the disposition of our Spectral Molecular Imaging subsidiary and the acquisition of our cellular-based technology from Cedars-Sinai.

Our principal executive offices are located at 23622 Calabasas Road, Suite 300, Calabasas, California 91302, and our telephone number at that address is (818) 264-2300.

Technology and Potential Products

The table below summarizes the status of our ICT-107, ICT-121 and ICT-140 product candidates and other technologies:

PRODUCT CANDIDATE	TARGET INDICATION	STATUS
Active Immunotherapies		
ICT-107 (DC-based immunotherapy targeting CSCs and cancer antigens)	Newly diagnosed GBM	Phase 3 enrolling patients
ICT-140 (DC-based immunotherapy targeting CSCs and cancer antigens)	Ovarian cancer	Phase 1 pending
ICT-121 (DC-based immunotherapy targeting CD133+ CSCs)	Recurrent GBM and other solid tumor cancers	Phase 1 in progress
Stem-to-T-cell therapies for cancer	To be determined	Pre-clinical

Cancer is caused by abnormal cells that grow in an uncontrolled manner. These cells proliferate and can metastasize throughout the body causing organ failure and death. Unfortunately, conventional cancer treatments, such as surgery, radiation, and chemotherapy, have limited therapeutic benefit and significant undesirable side effects. Our goal is to develop cancer therapies that activate the body’s immune system response to fight cancer. FDA-approved cancer immunotherapies, such as sipuleucel-T and ipilimumab, have been shown to improve patient survival where conventional therapies failed.

We believe our approach of targeting multiple tumor-associated antigens, as well as CSC antigens, will enable us to develop clinically effective treatments. Cancer is a complex disease often characterized by several cellular abnormalities. We

believe that targeting multiple cancer antigens not only increases the likelihood of an effective treatment, but also can prevent the tumor escape mechanisms sometimes observed with single-antigen targeted therapies.

Solid tumors commonly consist of different types of cancer cells. CSCs are a subset of cancer cells representing a small number of all cells in a tumor. They are believed to be responsible for growth and recurrence of primary and metastatic tumors. Like normal stem cells, CSCs have the ability to self-renew as well as make differentiated daughter cells. But, unlike normal stem cells, CSCs no longer have the ability to regulate their own growth. Scientists have shown that CSCs are resistant to radiation and chemotherapy. Thus, conventional therapies can eliminate most of the bulk tumor, but since the CSCs are not destroyed, the tumor can regrow after treatment. Complete eradication of the entire tumor mass requires elimination of the CSCs.

Active Immunotherapy

DCs are cells responsible for antigen processing and presentation to the immune system and play a central role in the body's immune response. They act as first responders that initiate a T cell response to fight infections or foreign bodies. DCs do this by recognizing, processing and presenting foreign antigens to the T cells. Thus, they are powerful potentiators of acquired immunity through an effective presentation of the cancer antigens to T cells, which subsequently mediate the killing of cancer cells. The goal of DC-based immunotherapies is to (i) make use of and enhance the DC's ability to trigger a T cell response and (ii) stimulate DCs to focus the T cell response to specifically target and destroy cancer cells.

DCs normally do not target malignant tumors, since they do not recognize the tumor as a foreign body that needs to be eliminated. Also, they are typically not present in sufficient numbers to permit an adequately potent immune response to fight cancer. DC therapy typically involves harvesting peripheral blood mononuclear cells (PBMCs) from a patient, culturing them and processing them in a laboratory to produce a sufficient number of highly potent DCs. The DCs are then cultured with tumor-associated antigens and injected back into the patient, where they can signal T cells to seek out and destroy cancer cells that express the tumor-associated antigens.

Sipuleucel-T was the first cell-based cancer immunotherapy to be approved by the FDA. This prostate cancer immunotherapy utilizes the patient's antigen presenting cells (APCs) to target a single tumor antigen known as prostatic acid phosphatase. A randomized phase 3 trial showed that sipuleucel-T was safe and extended the median overall survival of metastatic castrate-resistant prostate cancer patients by four months.

We believe that manufacturing and logistical costs associated with sipuleucel-T have limited the drug's commercial viability. Manufacturing is relatively inefficient as only about 25% of the final product actually consists of APCs. The APCs cannot be stored and must be administered within 18 hours. Also, patients must undergo three apheresis procedures every two weeks to harvest enough cells to manufacture three doses of sipuleucel-T.

In contrast, our DC technology avoids many of sipuleucel-T's shortcomings. As much as 90% of our final manufacturing product is DCs, which, we believe, can stimulate a much stronger immune response than APCs. Our manufacturing process is typically able to produce about 20 doses from a single apheresis procedure. Each manufacturing run takes three days to complete. The DCs can be frozen and stored for long periods. Our phase 2 ICT-107 immunotherapies have already demonstrated stability beyond two years. Freezing the immunotherapy eliminates the need to ship the product back to patients within 18 hours. Also, DCs can be administered more conveniently by intradermal injection versus intravenous infusion for sipuleucel-T.

Product Candidates

ICT-107

The American Cancer Society (ACS) estimates that about 23,800 malignant tumors of the brain and spinal cord will be diagnosed in the U.S. in 2017. GBM is the most prevalent and aggressive form of brain cancer. Over 10,000 new patients are diagnosed with GBM in the U.S. each year. Despite advances in surgery, radiation, and chemotherapy, recurrence is almost a certainty, occurring on average within 6.9 months. The median survival time for newly diagnosed GBM patients is only 14.6 months, and fewer than 10% of these patients live more than five years.

ICT-107 is a DC immunotherapy that targets six different tumor-associated antigens that are found on patients' tumor cells; at least four of the six antigens are highly expressed on CSCs. The immunotherapy is intended to be used subsequent to conventional therapy or concomitantly with chemotherapy in patients with newly diagnosed GBM. Results from a phase 1 clinical trial at Cedars-Sinai Medical Center in Los Angeles showed that ICT-107 was well tolerated, with no significant adverse events reported. As of the last update in March of 2016, six of 16 patients with newly diagnosed GBM treated with ICT-107 continue to survive more than seven years beyond first treatment. Five of the 16 patients were disease free over five years from first treatment. The median PFS in the 16 newly diagnosed patients enrolled in the trial was 16.9 months, and median OS was 38.4 months.

In June 2010, ICT-107 for the treatment of glioblastoma or brain stem glioma was granted Orphan Drug status by the FDA, making the product candidate eligible, under certain circumstances, for marketing exclusivity and other potential benefits.

In September 2010, we entered into a Master Services Agreement (MSA) with Aptiv Solutions (formerly Averion International Corp.), a clinical research organization. Under the MSA, Aptiv Solutions provides us with clinical trial support services in connection with and over the course of our phase 2 clinical trial for ICT-107, including overseeing enrollment of patients and execution. The MSA, which may be terminated by us at any time, provides for a limit of approximately $5.0 million on the fees that we will be obligated to pay if all the planned services are actually provided.

In January 2011, we entered into an immunotherapy production agreement with the University of Pennsylvania, which assisted us in the Good Manufacturing Practice (GMP) production of ICT-107 for the phase 2 trial. In October 2011, we entered into an agreement with Progenitor Cell Therapy, LLC to serve as a second manufacturer of ICT-107 for the phase 2 trial.

In February 2014, ICT-107 for the treatment of glioma, which includes glioblastoma multiforme, was granted Orphan Drug status by the EMA, providing us with eligibility to incentives, under certain circumstances, including a ten-year period of market exclusivity, access to a centralized review process, trial design assistance and scientific advice during product development, fee reductions, and tax incentives.

In March 2015, we entered into an immunotherapy production agreement with PharmaCell B.V. to serve as the European manufacturer of ICT-107 for the phase 3 trial. PharmaCell completed the manufacturing process technology transfer from PCT and became ready to manufacture ICT-107 for the phase 3 trial under Good Manufacturing Practices (cGMP) as of June 24, 2016.

In June 2015, we entered into an immunotherapy production agreement with PCT, LLC, a Caladrius Company, a subsidiary of Caladrius Biosciences, Inc. to serve as the North American manufacturer of ICT-107 for the phase 3 trial.

In June 2015, we entered into an MSA with Novella Clinical LLC, a clinical research organization. Under the MSA, Novella provides us with clinical trial support services in connection with and over the course of our phase 3 clinical trial for ICT-107, including overseeing enrollment of patients and execution. The MSA, which may be terminated by us at any time, provides for a limit of approximately $40.0 million on the fees that we will be obligated to pay if all of the planned services are actually provided.

In August 2015, the ICT-107 phase 3 trial design, that was submitted to the U.S. FDA received Special Protocol Assessment (SPA) agreement. In February 2017, the FDA responded to our protocol amendment, indicating that in order to proceed with the protocol amendment we would not be able to take advantage of the benefits of the previously granted (SPA) we had for the study prior to the amendment. Importantly, the FDA did not indicate that the trial would be placed on clinical hold if we implement the amended protocol and we intend to work with the FDA in an effort to clarify the rationale for the protocol amendment and attempt to maintain the SPA. In any event, based on the response we would plan to implement the amended protocol and proceed with the Phase 3 trial of ICT-107, with or without the SPA in effect, as the FDA further indicated that we could re-propose a SPA for the amended study.

As of December 31, 2016, we had 64 active trial sites in the U.S. and one in Canada. Furthermore, 293 patients had been screened, 37 of whom had successful manufacturing runs to produce ICT-107 and control. The first patient in the trial was treated on June 7, 2016 and 14 patients have been randomized to date.

ICT-140

The ACS estimates that about 22,440 women in the U.S. will receive a new diagnosis of ovarian cancer and about 14,080 will die from ovarian cancer in 2017. The National Cancer Institute reports that ovarian cancer is the ninth leading cause of cancer death in the U.S. for women and the lifetime risk is approximately 1.4%. By contrast, according to the most recent estimates 39% of women who inherit a harmful BRCA1 mutation and 11% to 17% of women who inherit a harmful BRCA2 mutation will develop ovarian cancer by age 70.

Ovarian cancer usually spreads via local shedding into the peritoneal cavity followed by implantation on the peritoneum and via local invasion of bowel and bladder. The incidence of positive nodes at primary surgery has been reported to be as much as 24% in patients with stage I disease, 50% in patients with stage II disease, 74% in patients with stage III disease and 73% in patients with stage IV disease. The five-year survival rate for all stages of ovarian cancer is approximately 44%. For cases where a diagnosis is made early in the disease, when the cancer is still confined to the primary site, the five-year survival rate is 92%. However, only 15% of all ovarian cancers are found at this early stage.

Many ovarian cancers are spontaneously invaded by T cells, and patients whose tumors have tumor-infiltrating T cells survive longer. As a result, we believe that cancer immunotherapies may improve the survival rate of patients with ovarian cancer.

ICT-140 is a DC immunotherapy that targets seven tumor-associated antigens expressed on ovarian cancer cells. Some of the antigens utilized in ICT-140 are also used in ICT-107. We filed an investigational new drug (IND) application for ICT-140 at the end of 2012 and the IND was allowed by the FDA in January 2013. We subsequently twice modified the design of the trial and amended the IND to reflect these changes in May 2013 and September 2014. These amendments were allowed by the FDA shortly after the submissions. During the interim time period, we upgraded our generalized DC immunotherapy manufacturing process to bring it to the level of phase 3 and commercial ready. We plan to use this improved process to manufacture clinical supplies for the ICT-140 trial. Currently, we are postponing the initiation of this trial until we find a partner to share expenses or until we have secured sufficient financial resources to complete the ICT-107 phase 3 program.

ICT-121

We and Cedars-Sinai Medical Center have discovered antigen peptides that can elicit a T cell immune response against CD133, a marker that is commonly present on CSCs. CD133-positive CSCs have been identified in a number of different cancers, including gliomas, colon cancer and pancreatic cancer.

ICT-121 specifically targets CD133, a CSC marker that is overexpressed in a wide variety of solid tumors, including ovarian, pancreatic, and breast cancers. We began screening patients in September 2013 for a single-site phase 1 trial in recurrent GBM. Originally, it was our intention to enroll 20 patients at one site. However, during 2014, we determined that enrollment could be accelerated if additional sites were added to the study. In 2015 we added five sites and made modifications in the screening criteria to facilitate enrollment. As of July 21, 2016, the trial was fully enrolled. The trial will be closed in the first quarter of 2017 and the data will be available by mid-year.

Intellectual Property Agreements

Cedars-Sinai Agreements

In May 2015, we entered into an Amended and Restated Exclusive License Agreement (the Amended License Agreement) with Cedars-Sinai. Pursuant to the Amended License Agreement, we acquired an exclusive, worldwide license from Cedars-Sinai to certain patent rights and technology developed in the course of research performed at Cedars-Sinai into the diagnosis of diseases and disorders in humans and the prevention and treatment of disorders in humans utilizing cellular therapies, including DC-based immunotherapies for brain tumors and other cancers and neurodegenerative disorders. Under the Amended License Agreement, we will have exclusive rights to, among other things, develop, use, manufacture, sell and grant sublicenses to the licensed technology.

We have agreed to pay Cedars-Sinai specified milestone payments related to the development and commercialization of ICT-107, ICT-121 and ICT-140. Among other milestone payments, we are required to pay to Cedars-Sinai specified milestone payments upon commencement of the first phase 3 clinical trial for our first product and upon first commercial sale of our first product. Upon the commencement of the first phase 3 clinical trial for ICT-107, which occurred in January 2016, we paid Cedars-Sinai the required milestone payment of $100,000. Upon the first commercial sale of our first product, the required milestone payments will be $1.0 million. We will pay Cedars-Sinai single digit percentages of gross revenues from the sales of products and high-single digit to low-double digit percentages of our sublicensing income based on the licensed technology.

The Amended License Agreement will terminate on a country-by-country basis on the expiration date of the last-to-expire licensed patent right in each such country. Either party may terminate the Amended License Agreement in the event of the other party's material breach of its obligations under the Agreement if such breach remains uncured 60 days after such party's receipt of written notice of such breach. Cedars-Sinai may also terminate the Amended License Agreement upon 30 days' written notice to us that a required payment by us to Cedars-Sinai under the Amended License Agreement is delinquent.

We have also entered into various sponsored research agreements with Cedars-Sinai and has paid an aggregate of approximately $1.2 million. The last agreement concluded on March 19, 2014 at an incremental cost of $126,237. As of December 31, 2016 , Cedars-Sinai is not performing any research activities on behalf of the Company.

The Johns Hopkins University Licensing Agreement

In February 2012, we entered into a license agreement with The Johns Hopkins University (JHU), pursuant to which we received an exclusive, worldwide license to JHU's rights in and to certain technology related to mesothelin-specific cancer immunotherapies. The license covers the application of this technology for all mesothelin peptide-based immunotherapies for cancer treatment and prevention, except bacteria-based, viral vector-based and nucleic acid-based immunotherapies. Unless earlier terminated, the term of the license extends in each country until the later of the expiration of the last patent related to the licensed technology in that country or ten years after the effective date of the license agreement. In order to maintain our license rights under the license agreement, we are required to meet certain diligence milestones and timelines.

Pursuant to the license agreement, we paid an upfront licensing fee in the low hundreds of thousands of dollars, payable half in cash and half in shares of common stock. We are obligated to pay milestone license fees upon completion of specified milestones totaling single digit millions of dollars if all milestones are met, customary royalties based on a low single digit percentage of net sales and sublicensing payments shared at a low double digit percentage, as well as annual minimum royalties increasing over time and ranging from low tens of thousands to low hundreds of thousands of dollars. We will also be responsible for reimbursing JHU for reasonable costs associated with the preparation, filing, maintenance and prosecution of the technology subject to the license. In September 2013, we entered into Amendment No. 1 to the license agreement that updated certain milestones. In August 2015, we entered into a Second Amendment to Exclusive License Agreement that amended certain sections of the license agreement and further updated certain milestones.

California Institute of Technology

On September 9, 2014, we entered into an Exclusive License Agreement with the California Institute of Technology (Caltech) under which we acquired exclusive rights to novel technology for the development of certain stem cell treatments that are potentially capable of producing antigen specific T cell killing of cancer cells.

Pursuant to the License Agreement, we agreed to pay a one-time license fee, a minimum annual royalty based on a low single digit percentage of net revenues and an annual maintenance fee in the low tens of thousands of dollars. In addition, we have agreed to make certain milestone payments upon completion of specified milestones.

Competition

The biopharmaceutical industry is characterized by intense competition and significant technological advancements. Many companies, research institutions, and universities are conducting research and development in a number of areas similar to those that we focus on. The development of new products could compete with and be superior to our product candidates.

Many of the companies with which we compete have substantially greater financial, technical, manufacturing, marketing, distribution and other resources. A number of these companies may have or may develop technologies for products that could be superior to ours. We expect technological developments in the biopharmaceutical and related fields to occur at a rapid rate, and believe competition will intensify as these fields advance. Accordingly, we will be required to devote substantial resources and efforts to research and development activities in order to potentially achieve and maintain a competitive position. Products that we develop may become obsolete before we are able to market them or to recover all or any portion of our research and development expenses. We may be competing with companies that have significantly more experience in undertaking preclinical testing and human clinical trials with new or improved therapeutic products and obtaining regulatory approvals of such products. A number of these companies already market and may be in advanced phases of clinical testing of various drugs that may compete with our product candidates or any future product candidates that we may develop. Competitors may develop or commercialize products more rapidly than we do, or that have significant advantages over products we develop. Therefore, our competitors may be more successful in commercializing their products, which could adversely affect our competitive position and business.

In addition to sipuleucel-T and ipilimumab, which have been approved for sale by the FDA, several major biopharmaceutical companies, including Genentech, Inc. (a member of the Roche Group), Amgen Inc., Merck & Co., Inc., Novartis AG, GlaxoSmithKline plc, Celgene Corporation and Bristol-Myers Squibb Company, smaller biotechnology companies, such as Oncothyreon Inc., Galena Biopharma, Inc., Agenus Inc., Bavarian Nordic A/S, Kite Pharma, Inc., Juno Therapeutics, Inc. and Immunovaccine Inc., are developing cancer immunotherapies. A number of immunotherapy companies, including Northwest Biotherapeutics, Inc., Prima Biomed Ltd and DC Prime B.V., also utilize DCs for their therapeutic cancer immunotherapies.

On December 8, 2016, Northwest Biotherapeutics publicly announced that the last 17 patients of a total target of 348 enrolled patients in their phase 3 trial in newly diagnosed glioblastoma would not be enrolled due to a partial clinical hold on new patients entering the trial. On February 6, 2017 Northwest Biotherapeutics announced that the partial clinical hold had been lifted by the FDA and that the trial has accumulated a sufficient number of events toward the progression-free survival endpoint, but not yet for the overall survival endpoint.

Bristol Myers Squibb has recently commenced two large phase 2 and 3 trials in newly diagnosed glioblastoma. The patient enrollment in these trials could impact the speed of the ICT-107 phase 3 enrollment.

In addition to the previously mentioned companies developing cancer immunotherapies, there are also several pharmaceutical companies, including OncoMed Pharmaceuticals, Inc., Verastem, Inc., Stemline Therapeutics, Inc. and Infinity Pharmaceuticals, Inc., that are pursuing drugs that target CSCs. Stemline is currently developing a peptide treatment, SL-701, for brain cancer.

In addition, in October 2015 Novocure received regulatory approval to market its Optune™ device in the U.S. for the treatment of newly diagnosed glioblastoma. The device delivers low-intensity, intermediate frequency, alternating electric currents to the brain. The adoption of this device could impact the speed of the ICT-107 phase 3 enrollment and its potential market should ICT-107 ultimately receive regulatory approval.

Colleges, universities, governmental agencies and other public and private research organizations are becoming more active in seeking patent protection and licensing arrangements to collect royalties for use of technologies that they have developed, some of which may directly compete with our product candidates or any future product candidates that we may develop. Governments of a number of foreign countries are aggressively investing in cellular therapy research and promoting such research by public and private institutions within those countries. Domestic and foreign institutions and governmental agencies, along with pharmaceutical and specialized biotechnology companies, can be expected to compete with us in recruiting qualified scientific personnel.

Our competitive position will be significantly impacted by the following factors, among others:

- our ability to obtain FDA marketing approval for our product candidates on a timely basis;
- the level of acceptance of our products by physicians, compared to those of competing products or therapies;
- our ability to have our products manufactured on a commercial scale;
- the effectiveness of sales and marketing efforts on behalf of our products;
- our ability to meet demand for our products;
- our ability to secure insurance reimbursement for our products;
- the price of our products relative to competing products or therapies;
- our ability to recruit and retain appropriate management and scientific personnel; and
- our ability to develop a commercial-scale research and development, manufacturing and marketing infrastructure, either on our own or with one or more future strategic partners.

Intellectual Property

As discussed further below, as of December 31, 2016, we had rights to or owned a portfolio of issued patents and pending patent applications that include claims that cover, or would cover if issued, antigen compositions of our DC immunotherapies, methods of use associated therewith, other related technologies, and Stem-to-T-cell technology.

In 2006, we licensed cancer immunotherapy technology from the Cedars-Sinai Medical Center. To date, four U.S. patents have issued, possessing expiration dates ranging from about 2027 to 2031, covering our ICT-107 product candidate, and related patent protection is pending in the U.S. and Canada. Four United States patents have also issued covering our cancer immunotherapy product candidate ICT-121, and these patents possess expiration dates from about 2027 to 2030; corresponding patent protection is pending or has issued in several foreign jurisdictions. For our ICT-140 product candidate, patent applications are pending in the U.S. and several foreign jurisdictions; any patents to issue from these applications will have an expiration date of about 2034. One or more of the U.S. patents and foreign applications, should they issue, may be entitled to an increased term due to, for example, patent term extension or additional proprietary protection through a supplementary protection certificate.

There can be no assurance that any further patents will issue in the United States or in any foreign jurisdiction relating to our ICT-107, ICT-121, or ICT-140 product candidates, or that any patent that has issued, or does issue in the future, will not be challenged, invalidated or circumvented by others.

In addition to the proprietary rights drawn to DC-based immunotherapy product candidates that we have secured from Cedars-Sinai, we have licensed rights to issued patents and pending patent applications relating to various antigens used in the immunotherapy products. There can be no assurance that any further patents will issue in the U.S. or in any foreign jurisdiction relating to these antigens, or that any patent that has issued, or does issue in the future, will not be challenged, invalidated or circumvented by others.

Dr. John Yu, a co-inventor of our cellular-based therapy technology who serves on our Board of Directors, is employed by Cedars-Sinai, which may assert that future intellectual property generated by Dr. Yu belongs to that institution rather than to us, and we may be required to seek a license from Cedars-Sinai for any such rights.

Employees

As of December 31, 2016 , we had seven full-time employees and two part-time employees. In addition, we have a number of consulting agreements with individuals and groups to support clinical development, regulatory affairs, investor relations and business development. We outsource all of our drug discovery research, process development, manufacturing and clinical development to third parties with expertise in those areas.

Government Regulation

The United States and other developed countries extensively regulate the preclinical and clinical testing, manufacturing, labeling, storage, record-keeping, advertising, promotion, export, marketing and distribution of drugs and biologic products. The FDA, under the Federal Food, Drug, and Cosmetic Act, the Public Health Service Act and other federal statutes and regulations, regulates pharmaceutical and biologic products.

To obtain approval of our product candidates from the FDA, we must, among other requirements, submit data supporting safety and efficacy, or for biologics, safety, purity and potency, for the intended indication as well as detailed information on the manufacture and composition of the product candidate. In most cases, this will require extensive laboratory tests and preclinical and clinical trials. The collection of these data, as well as the preparation of applications for review by the FDA involve significant time and expense. The FDA also may require post-marketing testing to monitor the safety and efficacy of approved products or place conditions on any approvals that could restrict the therapeutic claims and commercial applications of these products. Regulatory authorities may withdraw product approvals if we fail to comply with regulatory standards or if we encounter problems at any time following initial marketing of our products.

The first stage of the FDA approval process for a new biologic or drug involves completion of preclinical studies and the submission of the results of these studies to the FDA. This data, together with proposed clinical protocols, manufacturing information, analytical data and other information submitted to the FDA, in an investigational new drug application (IND), must become effective before human clinical trials may commence. Preclinical studies generally involve FDA regulated laboratory evaluation of product characteristics and animal studies to assess the efficacy and safety of the product candidate.

After the IND becomes effective, a company may commence human clinical trials. However, the FDA may place the IND on clinical hold at any time, which requires that issues concerning safety of the product or trial be resolved to the FDA's satisfaction prior to resuming activities under the IND. Human clinical trials are typically conducted in three sequential phases, but the phases may overlap. Phase 1 trials consist of testing of the product candidate in a small number of patients or healthy volunteers, primarily for safety at one or more doses. Phase 1 trials in cancer are often conducted with patients who are not healthy and who have end-stage or metastatic cancer. Phase 2 trials, in addition to safety, evaluate the efficacy of the product candidate in a patient population somewhat larger than phase 1 trials. Phase 3 trials typically involve additional testing for safety and clinical efficacy in an expanded population at multiple test sites. A company must submit to the FDA a clinical protocol, accompanied by the approval of the Institutional Review Boards at the institutions participating in the trials, prior to commencement of each clinical trial. Before proceeding with a phase 3 clinical trial, sponsors may seek a written agreement from the FDA regarding the design, size, and conduct of a clinical trial. This is known as a Special Protocol Assessment, or SPA. SPAs help establish up front agreement with the FDA about the adequacy of the design of a clinical trial to support a regulatory approval, but the agreement is not binding if new circumstances arise. In addition, even if a SPA remains in place and the trial meets its endpoints with statistical significance, the FDA could determine that the overall balance of risks and benefits for the product candidate is not adequate to support approval, or only justifies approval for a narrow set of clinical uses or approval with restricted distribution or other burdensome post-approval requirements or limitations.

To obtain FDA marketing authorization, a company must submit to the FDA the results of the preclinical and clinical testing, together with, among other things, detailed information on the manufacture and composition of the product candidate, in the form of a new drug application (NDA) or, in the case of a biologic, like DC-based immunotherapies for neurological disorders, a biologics license application (BLA). The FDA has sixty days after the sponsor's submission of an NDA or BLA to file the application and begin the user fee review period. Unless an exemption applies, each BLA we submit will be required to be accompanied by a substantial user fee payment.

The amount of time taken by the FDA for approval of an NDA or BLA will depend upon a number of factors, including whether the product candidate qualifies for priority review, the quality of the submission and studies presented, the potential contribution that the compound will make in improving the treatment of the disease in question, and the workload at the FDA. The FDA has committed to reviewing standard BLAs in 10 months from filing and priority BLAs in six months from filing, but the actual time it takes to review any BLA that we may submit could be substantially longer.

The FDA may, during its review of an NDA or BLA, ask for additional test data that may require the conduct of additional clinical trials. If the FDA does ultimately approve the product candidate for marketing, it may require post-marketing testing to monitor the safety and effectiveness of the product. The FDA also may in some circumstances impose restrictions on the use of the product, such as a Risk Evaluation and Mitigation Strategy, or REMS, which may be difficult and expensive to administer and may require prior approval of promotional materials.

We will also be subject to a variety of regulations governing clinical trials and sales of our products outside the United States. Whether or not FDA approval has been obtained, approval of a product candidate by the comparable regulatory authorities of foreign countries and regions must be obtained prior to the commencement of marketing the product in those countries. The approval process varies from one regulatory authority to another and the time may be longer or shorter than that required for FDA approval. In the European Union, Canada and Australia, regulatory requirements and approval processes are similar, in principle, to those in the United States.

Before approving a BLA, the FDA will inspect the facilities at which the product is manufactured and will not approve the product unless the manufacturing facilities are in compliance with the FDA's cGMP, which are regulations that govern the manufacture, holding and distribution of a product. Manufacturers of biologics also must comply with the FDA's general biological product standards. Following approval, the FDA periodically inspects drug and biologic manufacturing facilities to ensure continued compliance with the good manufacturing practices regulations. We must ensure that any third-party manufacturers continue to comply with those requirements. Failure to comply with these requirements subjects the manufacturer to possible legal or regulatory action, such as suspension of manufacturing or recall or seizure of product. Adverse patient experiences with the product must be reported to the FDA and could result in the imposition of marketing restrictions through labeling changes or market removal. Product approvals may be withdrawn if compliance with regulatory requirements is not maintained or if problems concerning safety or efficacy of the product occur following approval.

The labeling, advertising, promotion, marketing and distribution of a drug or biologic product also must be in compliance with FDA and Federal Trade Commission, requirements, which include, among others, standards and regulations for off-label promotion, industry sponsored scientific and educational activities, promotional activities involving the internet, and direct-to-consumer advertising. We also will be subject to a variety of federal, state and local regulations relating to the use, handling, storage and disposal of hazardous materials, including chemicals and radioactive and biological materials. In addition, we will be subject to various laws and regulations governing laboratory practices and the experimental use of animals. In each of these areas, as above, the FDA has broad regulatory and enforcement powers, including the ability to levy fines and civil penalties, suspend or delay issuance of product approvals, seize or recall products, and deny or withdraw approvals.

We also will be subject to federal regulation by the Occupational Safety and Health Administration and the Environmental Protection Agency and to regulation under the Toxic Substances Control Act, the Resource Conservation and Recovery Act and other federal and state regulatory statutes, and may in the future be subject to other federal, state or local regulations.

We may be subject to data privacy and security regulations by both the federal government and the states in which we conduct our business. The Health Insurance Portability and Accountability Act of 1996 (HIPAA), as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and its implementing regulations, imposes requirements relating to the privacy, security and transmission of individually identifiable health information. Among other things, HITECH makes HIPAA's privacy and security standards directly applicable to business associates independent contractors or agents of covered entities that receive or obtain protected health information in connection with providing a service on behalf of a covered entity. HITECH also created four new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions. In addition, state laws govern the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

Orphan Drug Act

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biologic intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the United States, or more than 200,000 individuals in the United States and for which there is no reasonable expectation that the cost of developing and making available in the United States a drug or biologic for this type of disease or condition will be recovered from sales in the United States for that drug or biologic. Orphan drug designation must be requested before submitting a BLA. After the FDA grants orphan drug designation, the generic identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. The orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review or approval process.

If a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications, including a full BLA, to market the same biologic for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity. Orphan drug exclusivity does not prevent FDA from approving a different drug or biologic for the same disease or condition, or the same drug or

biologic for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the BLA application user fee.

A designated orphan drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the indication for which it received orphan designation. In addition, exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

Available Information

We file electronically with the SEC our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K pursuant to Section 13 or 15(d) of the Exchange Act. The public may read or copy any materials we file with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The address of that site is www.sec.gov.

You may obtain a free copy of our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K and amendments to those reports on the day of filing with the SEC, on our website at www.imuc.com or by contacting the Investor Relations Department at our corporate offices at (818) 264-2300. The information found on our website is not part of this or any other report filed with or furnished to the SEC.

Item 1A. Risk Factors.

In evaluating our business, you should carefully consider the following risks in addition to the other information in this report. Any of the following risks could materially and adversely affect our business, results of operations, financial condition or your investment in our securities, and many are beyond our control. The risks and uncertainties described below are not the only ones facing us. Additional risks and uncertainties not presently known to us, or that we currently see as immaterial, may also adversely affect our business.

Risks Related To Our Business

We are a pre-revenue stage company subject to all of the risks and uncertainties of a biotechnology business, including the risk that we may never successfully develop any products or generate revenues.

We are a pre-revenue stage company with research and development activity based on two products in clinical development. We may be unable to successfully develop or market any of our current or proposed product candidates, those product candidates may not generate any revenues, and any revenues generated may not be sufficient for us to become profitable or thereafter maintain profitability. We have not generated any recurring revenues to date, and we do not expect to generate any such revenues for a number of years.

Our cell-based immunotherapy technologies are our primary platform technologies, and our commercial prospects will be heavily dependent on the outcome of regulatory requirements and any future clinical trials for our lead immunotherapy product candidate, ICT-107. We have only seven full-time employees and two part-time employees, have limited resources and may not possess the ability to successfully overcome many of the risks and uncertainties frequently encountered by early stage companies involved in the new and rapidly evolving field of biotechnology in general and cancer immunotherapies in particular. You must consider that we may not be able to:

- obtain additional financial resources and meet milestones under award funding necessary to develop, test, manufacture and market our immunotherapy product candidates, in particular ICT-107;
- engage corporate partners to assist in developing, testing, manufacturing and marketing our immunotherapy product candidates or any future product candidates that we may develop;
- satisfy the regulatory requirements for acceptable pre-clinical and clinical trial studies or to timely enroll patients;
- establish and demonstrate or satisfactorily complete the research to demonstrate at various stages the pre-clinical and clinical efficacy and safety of our immunotherapy product candidates or any future product candidates that we may develop;
- apply for and obtain the necessary regulatory approvals from the FDA and the appropriate foreign regulatory agencies;
- market our immunotherapy product candidates or any future product candidates that we may develop to achieve acceptance and use by the medical community and patients in general and produce revenues; and
- attract and retain, on acceptable terms, qualified technical, commercial and administrative staff for the continued development and growth of our business.

Our current product candidates and any future product candidates that we may develop will be based on novel technologies and the development, manufacture and regulatory approval for such products are inherently risky.

We are subject to the risks of failure inherent in the development of products based on new technologies. The novel nature of our therapies creates significant challenges in regard to product development and optimization, manufacturing, government regulation, third-party reimbursement and market acceptance. For example, the FDA may have limited experience with dendritic cell-based therapeutics and, with the exception of one dendritic cell-based immunotherapy for the treatment of prostate cancer, has not yet approved any of these therapeutics for marketing, and the pathway to regulatory approval for our immunotherapy product candidates or any future vaccine product candidates may accordingly be more uncertain, complex and lengthy than the pathway for new conventional drugs. The targeting of cancer stem cells as a potential therapy is a recent development that may not become broadly accepted by scientists, physicians, pharmaceutical companies or the FDA. In addition, the manufacture of biological products, including dendritic cell-based immunotherapies, could be more complex and difficult, and therefore, these potential challenges may prevent us from developing and commercializing products on a timely or profitable basis or at all.

We may elect to delay or discontinue preclinical studies or clinical trials based on unfavorable results. Any product candidate using a cellular therapeutic technology may fail to:

- survive and persist in the desired location;
- provide the intended therapeutic benefits;
- properly integrate into existing tissue in the desired manner; or
- achieve therapeutic benefits equal to or better than the standard of treatment at the time of testing.

In addition, our product candidates may cause undesirable side effects. Results of preclinical research with our immunotherapy product candidates or any other or future product candidates that we may develop or clinical results with formulations used in earlier trials that are similar but not identical to our product candidate formulations may not be indicative of the results that will be obtained in later stages of preclinical or clinical research on our product candidates. In particular, the results generated in our phase 2 trial of ICT-107 may not be indicative of the results that we might obtain in further phase 3 testing of ICT-107.

If regulatory authorities do not approve our products or if we fail to maintain regulatory compliance, we would be unable to commercialize our products, and our business and results of operations would be harmed. Furthermore, because cancer stem cell and dendritic cell-based products represent new forms of therapy, the marketplace may not accept any products we may develop that utilize these technologies. If we do succeed in developing products, we will face many potential obstacles, such as the need to obtain regulatory approvals and to develop or obtain manufacturing, marketing and distribution capabilities. In addition, we will face substantial additional risks, such as product liability claims.

Because of the early stage of development of our immunotherapy product candidates, we do not know if we will be able to generate data that will support the filing of a biologics license application for these product candidates or the FDA's approval thereof. Any of our investigational new drug applications (INDs) may be placed on clinical hold by the FDA at any time, which would delay clinical development until underlying safety concerns are resolved to the FDA's satisfaction. For example, in December 2016, we submitted a protocol amendment to our Phase 3 trial of ICT-107 to the FDA, and in February 2017, the FDA responded to our protocol amendment, indicating that in order to proceed with the protocol amendment, we would not be able to take advantage of the benefits of the previously granted SPA. While the FDA did not indicate that the trial would be placed on hold if we implement the amended protocol, we can make no assurance that the FDA will agree with our amendments to the protocol and may require additional information or further amendments. If we experience substantial delays, we may not have the financial resources to continue development of these product candidates or the development of any of our other or future product candidates that we may develop. Delays in clinical trials could reduce the commercial viability of our immunotherapy product candidates and any other or future product candidates that we may develop. Delays in patient enrollment may be caused by a number of factors, including patient reluctance to participate in blinded trials where the patient is not assured of receiving the treatment being tested in the trial. Even if we successfully develop and gain regulatory approval for our products, we still may not generate sufficient or sustainable revenues or we may not become profitable, which could have a material adverse effect on our ability to continue our marketing and distribution efforts, research and development programs and operations.

If we encounter difficulties enrolling patients in our clinical trials, our trials could be delayed or otherwise adversely affected.

Clinical trials for our product candidates require that we identify and enroll a large number of patients with the disease under investigation. We may not be able to enroll a sufficient number of patients, or those with required or desired characteristics to achieve diversity in a study, to complete our clinical trials in a timely manner. We have in the past experienced some difficulty in enrollment in our clinical trials due to the criteria specified for eligibility for these trials, and we may encounter these difficulties in our ongoing clinical trials for our product candidates. The early enrollment experience in the ICT-107 phase 3 trial indicated that we needed to make modifications in the trial protocol to accelerate enrollment. We submitted a protocol amendment to FDA in December 2016 and plan to submit to regulatory agencies in Canada and the European countries participating in the trial during the first quarter of 2017. The amendment is designed to improve the success rate and speed of randomization from the original protocol by resolving certain issues identified in the first several months of operating the trial. In February 2017, the FDA responded to our protocol amendment, indicating that in order to proceed with the protocol amendment, we would not be able to take advantage of the benefits of the previously granted SPA While the FDA did not indicate that the trial would be placed on hold if we implement the amended protocol, we can make no assurance that the FDA will agree with our amendments to the protocol. In addition, with respect to ICT-107, we receive award funding based on reimbursement of amounts expended depending upon patient initiation in our ongoing phase 3 clinical trial and any delays in enrollment would negatively impact our cash flow and ability to finance our operations.

Patient enrollment is affected by factors including:

- design of the trial protocol;
- the size of the patient population;
- eligibility criteria for the study in question;
- perceived risks and benefits of the product candidate under study;
- availability of competing therapies and clinical trials;
- efforts to facilitate enrollment in clinical trials;
- our ability to successfully apherese and manufacture ICT-107 and placebo for trial participants in a timely and cost-effective manner;
- the ability to monitor patients adequately during and after treatment; and
- proximity and availability of clinical trial sites for prospective patients.

If we have difficulty enrolling a sufficient number or diversity of patients to conduct our clinical trials as planned, we may need to delay or terminate ongoing or planned clinical trials, either of which would have a negative effect on our business. For example, we originally projected that we would complete enrollment of our ICT-107 phase 3 study by the end of 2017, with interim results at that time and six months thereafter. With the enrollment experience to date in the trial and a knowledge of likely modifications to the protocol, we now think the completion of enrollment will be completed by mid-2019. There can be no assurance that we will timely achieve these revised goals, that we will receive awards under our agreement with CIRM or that we will have sufficient funding to obtain these results or that the results will be favorable.

Before we can market our immunotherapy product candidates or any other or future product candidates that we may develop, we must obtain governmental approval for each of these product candidates, the application and receipt of which is time-consuming, costly and uncertain.

Our current product candidates and any future product candidates that we will be developing will require approval of the FDA before they can be marketed in the U.S. Although our focus at this time is primarily on the U.S. market, in the future similar approvals will need to be obtained from foreign regulatory agencies before we can market our current and proposed product candidates in other countries. The process for filing and obtaining FDA approval to market therapeutic products is both time-consuming and costly, with no certainty of a successful outcome. The historical failure rate for companies seeking to obtain FDA approval of therapeutic products, particularly immunotherapies for cancer, is high and, with the exception of Dendreon Corporation's (acquired in January 2017 from Valeant Pharmaceuticals by Sunpower Group Ltd.) antigen presenting cell immunotherapy for the treatment of prostate cancer, no cell-based cancer immunotherapy has to date been approved by the FDA. This process includes conducting extensive pre-clinical research and clinical testing, which may take longer and cost more than we initially anticipate due to numerous factors, including without limitation, difficulty in securing appropriate centers to conduct trials, difficulty in enrolling patients in conformity with required protocols in a timely manner, unexpected adverse reactions by patients in the trials to our proposed product candidates and changes in the FDA's requirements for our testing during the course of that testing.

The time required to obtain FDA and other approvals is unpredictable but often can exceed five years following the commencement of clinical trials, depending upon the complexity of the product and other factors.

Any analysis we perform on data from preclinical and clinical activities is subject to confirmation and interpretation by regulatory authorities, which could delay, limit or prevent regulatory approval. We may also encounter unexpected delays or increased costs due to a variety of reasons, including new government regulations from future legislation or administrative action, or from changes in FDA policy during the period of product development, clinical trials and FDA regulatory review.

Failure to timely and successfully complete clinical trials, show that our products are safe and effective and timely file and receive approval of our biologics license applications would have a material adverse effect on our business and results of operations. Even if approved, the labeling approved by the relevant regulatory authority for a product may restrict to whom we and our potential partners may market the product or in the manner in which our product may be administered, which could significantly limit the commercial opportunity for such product.

Prior to granting product approval, the FDA must determine that our third party contractors' manufacturing facilities meet current good manufacturing practice (GMP) requirements before we can use them in the commercial manufacture of our products. We and all our contract manufacturers are required to comply with the applicable GMP current regulations.

Manufacturers of biologics must also comply with the FDA's general biological product standards. Failure to comply with the statutory and regulatory requirements subjects the manufacturer to possible legal or regulatory action, such as suspension of manufacturing, seizure of product or voluntary recall of a product. GMP regulations require quality control and quality assurance as well as the corresponding maintenance of records and documentation sufficient to ensure the quality of the approved product.

Certain of our current product candidates may not be eligible for Orphan Drug status.

Regulatory authorities in the United States and Europe may designate drugs for relatively small patient populations as orphan drugs. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process, but does make the product eligible for orphan drug exclusivity, reduced filing fees and specific tax credits. Generally, if a company receives the first marketing approval for a product with an orphan drug designation in the clinical indication for which it has such designation, the product is entitled to orphan drug exclusivity. Orphan drug exclusivity in the United States means that the FDA will not approve another application to market the same drug for the same indication, except in limited circumstances, for a period of seven years in the United States. This exclusivity, however, could block the approval of our proposed product candidates if a competitor obtains marketing approval before us. In Europe, orphan drug exclusivity means that we will have market exclusivity for ten years. We have obtained orphan drug status in the United States and Europe for ICT-107 to treat GBM and may also seek this status for ICT-140 to treat ovarian cancer and for ICT-121 to treat recurrent GBM if we meet the eligibility criteria. However, even if we obtain orphan drug exclusivity for any of our proposed product candidates, we may not be able to maintain it. For example, if a competitive product is shown to be clinically superior to our product, any orphan drug exclusivity we have will not block the approval of such competitive product.

Because our current and our other future potential product candidates will represent novel approaches to the treatment of disease, there are many uncertainties regarding the development, manufacturing, market acceptance, third-party reimbursement coverage and commercial potential of our product candidates.

The approaches offered by our current product candidates or any future product candidates that we may develop may not gain broad acceptance among doctors or patients and governmental agencies or third-party medical insurers may not be willing to provide reimbursement coverage for proposed product candidates. Moreover, we do not have internal marketing data research resources and are not certain of and have not attempted to independently verify the potential size of the commercial markets for our current product candidates or any future product candidates that we may develop. Since our current product candidates and any future product candidates that we may develop will represent new approaches to treating various conditions, it may be difficult, in any event, to accurately estimate the potential revenues from these product candidates. We may spend large amounts of money trying to obtain approval for these product candidates, and never succeed in doing so. In addition, these product candidates may not demonstrate in large sets of patients the pharmacological properties ascribed to them in the laboratory studies or smaller groups of patients, and they may interact with human biological systems in unforeseen, ineffective or even harmful ways either before or after they are approved to be marketed. We have not yet manufactured our product on a commercial scale and may not be able to achieve manufacturing efficiencies relative to our competitors. We have experienced lot contamination or potential contaminations in our manufacturing process for clinical supplies that have been resolved with only minor delays to ongoing manufacturing. However, there can be no guarantee that we will not continue to experience contaminations in the future and therefore potential delays or interruptions in manufacturing. We do not yet have sufficient information to reliably estimate what it will cost to commercially manufacture our current product candidates or any future product candidates that we may develop, and the actual cost to manufacture these products could materially and adversely affect the commercial viability of these products. Certain of our cell-based immunotherapy product candidates may be formulated with cells harvested and processed from individual target patients, which could limit the total patient population for these immunotherapies and could require complex and costly manufacturing processes to produce these immunotherapies on a commercial basis. As a result, we may never succeed in developing a marketable product. If we do not successfully develop and commercialize products based upon our approach, we will not become profitable, which would materially and adversely affect the value of our common stock. Finally, in order to have commercially viable markets for our products, we will need to obtain an adequate level of reimbursement by third party payors for our products.

The commercial success of our product candidates will depend upon the degree of market acceptance by physicians, patients, healthcare payors and others in the medical community.

Any product that we bring to market may not gain or maintain market acceptance by governmental purchasers, group purchasing organizations, physicians, patients, healthcare payors and others in the medical community. If any products that we develop do not achieve an adequate level of acceptance, we may not generate sufficient revenues to support continued commercialization of these products. The degree of market acceptance of our product candidates, if approved for commercial sale, will depend on a number of factors, including:

- the perceived safety and efficacy of our products;
- the prevalence and severity of any side effects;
- our ability to gain access to the entire market through distributor arrangements;
- the willingness of the target patient population to try new products and of physicians to prescribe our products;
- the effectiveness of our marketing strategy and distribution support;
- the timing of our receipt of any marketing approvals, the terms of any approvals and the countries in which approvals are obtained;
- the availability of government and third-party payor reimbursement;
- the pricing of our product candidates, particularly as compared to alternative treatments; and
- the availability of alternative effective forms of treatments, at that time, for the diseases that the product candidates we are developing are intended to treat.

Adverse publicity regarding cellular therapies could impact our business.

Although we are not utilizing embryonic stem cells, adverse publicity due to the ethical and social controversies surrounding the use of such cells or any adverse reported side effects from any stem cell, dendritic or other cell therapy clinical trials or to the failure of such trials to demonstrate that these therapies are efficacious could materially and adversely affect our ability to raise capital or recruit managerial or scientific personnel or obtain research grants.

As an early stage small company that will be competing against numerous large, established companies that have substantially greater financial, technical, manufacturing, marketing, distribution and other resources than we have, we will be at a significant competitive disadvantage.

The pharmaceutical and biopharmaceutical industry is characterized by intense competition and rapid and significant technological changes and advancements. Many companies, research institutions and universities are doing research and development work in several areas similar to those that we focus on that could lead to the development of new products which could compete with and be superior to our product candidates.

Most of the companies with which we compete have substantially greater financial, technical, research, manufacturing, marketing, distribution and other resources than those of ours. A number of these companies may have or may develop technologies for developing products for treating various diseases, including brain cancers, which could prove to be superior to ours. We expect technological developments in the pharmaceutical and biopharmaceutical and related fields to occur at a rapid rate, and we believe competition will intensify as advances in these fields are made. Accordingly, we will be required to continue to devote substantial resources and efforts to research and development activities in order to potentially achieve and maintain a competitive position in this field. Products that we develop may become obsolete before we are able to market them or to recover all or any portion of our research and development expenses. We will be competing with respect to our products with companies that have significantly more experience and expertise in undertaking preclinical testing and human clinical trials with new or improved therapeutic products and obtaining regulatory approvals of such products. A number of these companies already market and may be in advanced phases of clinical testing of various drugs that will or may compete with our current product candidates or other future potential product candidates. Our competitors may develop or commercialize products more rapidly than we do or with significant advantages over any products we develop. Our competitors may therefore be more successful in commercializing their products than us, which could adversely affect our competitive position and business.

In addition to sipuleucel-T and ipilimumab, which have been approved for sale by the FDA, several major biopharmaceutical companies, including Genentech, Inc. (a member of the Roche Group), Amgen Inc., Merck & Co., Inc., Novartis AG, GlaxoSmithKline plc, Celgene Corporation and Bristol-Myers Squibb Company (BMS), smaller biotechnology companies, such as Oncothyreon Inc., Galena Biopharma, Inc., Agenus Inc., Bavarian Nordic A/S, Kite Pharma, Inc., Juno Therapeutics, Inc. and Immunovaccine Inc., are developing cancer immunotherapies. A number of immunotherapy companies, including Northwest Biotherapeutics, Inc., Prima Biomed Ltd and DCPrime B.V., also utilize DCs for their therapeutic cancer immunotherapies.

Several companies are developing immunotherapies to treat newly diagnosed GBM. For example, Northwest Biotherapeutics is conducting a phase 3 study with DCVax, a DC-based tumor lysate vaccine. Agenus Inc. has recently completed a phase 2 clinical trial with its heat shock protein and tumor-derived peptide vaccine (HSPPC-96). BMS has recently launched two late stage trials to test their checkpoint inhibitor antibody, nivolumab, in both unmethylated MGMT and

methylated MGMT newly diagnosed glioblastoma patients. Nivolumab is already approved by FDA and other regulators to treat other types of cancers.

In addition to the previously mentioned companies developing cancer immunotherapies, there are also several pharmaceutical companies, including OncoMed Pharmaceuticals, Inc., Verastem, Inc., Stemline Therapeutics, Inc. and Infinity Pharmaceuticals, Inc., that are pursuing drugs that target CSCs. Stemline is currently developing a peptide treatment, SL-701, for brain cancer.

In addition, in October 2015 Novocure received regulatory approval to market its Optune™ device in the U.S. for the treatment of newly diagnosed glioblastoma. The device delivers low-intensity, intermediate frequency, alternating electric currents to the brain. The adoption of this device could impact the speed of the ICT-107 phase 3 enrollment and its potential market should ICT-107 ultimately receive regulatory approval.

Colleges, universities, governmental agencies, and other public and private research organizations are becoming more active in seeking patent protection and licensing arrangements to collect royalties for use of technologies that they have developed, some of which may directly compete with our product candidates or any future product candidates that we may develop. Governments of a number of foreign countries are aggressively investing in cellular therapy research and promoting such research by public and private institutions within those countries. Domestic and foreign institutions and governmental agencies, along with pharmaceutical and specialized biotechnology companies, can be expected to compete with us in recruiting qualified scientific personnel.

Our competitive position will be significantly impacted by the following factors, among others:

- our ability to obtain U.S. and foreign marketing approvals for our product candidates on a timely basis;
- the level of acceptance of our products by physicians, compared to those of competing products or therapies;
- our ability to have our products manufactured on a commercial scale;
- the effectiveness of sales and marketing efforts on behalf of our products;
- our ability to meet demand for our products;
- our ability to secure insurance reimbursement for our products;
- the price of our products relative to competing products or therapies;
- our ability to enter into collaborations with third parties to market our products;
- our ability to recruit and retain appropriate management and scientific personnel; and
- our ability to develop a commercial-scale research and development, manufacturing and marketing infrastructure, either on our own or with one or more future strategic partners.

The market success of our current product candidates and any future product candidates that we may develop will be dependent in part upon third-party reimbursement policies that will not be established for our product candidates until we are closer to receiving approval to market.

Our ability to successfully commercialize and penetrate the market for our current product candidates and any future product candidates that we may develop is likely to depend significantly on the availability of reimbursement for our lead product candidate or any other or future product candidates that we may develop from third-party payors, such as governmental agencies, private insurers and private health plans. Even if we are successful in bringing a proposed product candidate to the market, these product candidates may not be considered cost-effective, and the amount reimbursed for our products may be insufficient to allow us to sell any of our products on a competitive basis. We cannot predict whether levels of reimbursement for our product candidates, if any, will be high enough to allow the price of our product candidates to include a reasonable profit margin. Even with FDA approval, third-party payors may deny reimbursement if the payor determines that our particular product candidates are unnecessary, inappropriate or not cost effective. If patients are not entitled to receive reimbursements similar to reimbursements for competing products which currently are reimbursable, they may be unwilling to use our product candidates since they will have to pay for the unreimbursed amounts. The reimbursement status of newly approved health care products is highly uncertain. If levels of reimbursement are decreased in the future, the demand for our lead product candidate and any future product candidates that we may develop could diminish or our ability to sell our products on a profitable basis could be adversely affected.

We believe that the efforts of governments and third-party payors to contain or reduce the cost of healthcare will continue to affect the business and financial condition of pharmaceutical and biopharmaceutical companies. Comprehensive health care reform legislation that was enacted in 2010 could adversely affect our business and financial condition. Among

other provisions, the legislation provides that a biosimilar product may be approved by the FDA on the basis of analytical tests and certain clinical studies demonstrating that such product is highly similar to an existing, approved product and that switching between an existing product and the biosimilar product will not result in diminished safety or efficacy. This abbreviated regulatory approval process may result in increased competition if we are able to bring a biopharmaceutical product to market. The legislation also includes more stringent compliance programs for companies in various sectors of the life sciences industry with which we may need to comply and enhanced penalties for non-compliance with the new health care regulations. Complying with new regulations may divert management resources, and inadvertent failure to comply with new regulations may result in penalties being imposed on us.

A number of legislative and regulatory proposals to change the healthcare system in the United States and other major healthcare markets have been proposed at the state and federal levels in recent years. These proposals have included prescription drug benefit legislation recently enacted in the United States and healthcare reform legislation recently enacted by certain states. Further federal and state legislative and regulatory developments are likely, and we expect ongoing initiatives in the United States to increase pressure on drug pricing. Such reforms could have an adverse effect on anticipated revenues from any products that we may successfully develop.

We may be subject to product liability and other claims that could have a material negative effect on our operations and on our financial condition.

The development and sale of pharmaceutical products in general, and vaccines in particular, expose us to the risk of significant damages from product liability and other claims. Product liability claims could delay or prevent completion of our clinical development programs. If we succeed in marketing our current lead product candidates or any future product candidates that we may develop, such claims could result in an FDA investigation of the safety and effectiveness of our products or our marketing programs, and potentially a recall of our products or more serious enforcement action, or limitations on the indications for which they may be used, or suspension or withdrawal of approval. We plan to obtain and maintain product liability insurance for coverage of our clinical trial activities and obtained this coverage for the recently completed and current clinical trials of our dendritic cell-based vaccine product candidate. We may not be able to secure such insurance in the amounts we are seeking or at all for any of the future trials for our current product candidates or any future product candidates that we may develop. We intend to obtain coverage for our products when they enter the marketplace (as well as requiring the manufacturers of our products to maintain insurance), but we do not know if insurance will be available to us at acceptable costs or at all. The costs for many forms of liability insurance have risen substantially in recent years and the costs for insuring a vaccine type product may be higher than other pharmaceutical products, and such costs may continue to increase in the future, which could materially impact our costs for clinical or product liability insurance. If the cost is too high, we will have to self-insure, and we may have inadequate financial resources to pay the costs of any claims. A successful claim in excess of our product liability coverage could have a material adverse effect on our business, financial condition and results of operations.

We are dependent on our key personnel, and the loss of one or more of our key personnel would materially and adversely affect our business and prospects.

We are dependent on our officers and directors for their scientific or managerial skills. Except for our President and Chief Executive Officer and our Senior Vice President - Research, we do not have any full-time executive management personnel. We do not currently maintain key man life insurance on any of our scientific or management team. All of our full-time executive management personnel can terminate their services to us at any time. The loss of any of these individuals would materially and adversely affect our business.

As we retain additional full-time or part-time senior personnel necessary to further our advanced development of product candidates, our expenses for salaries and related items will increase materially from current levels. Competition for such personnel is intense, and we may not be able to attract or retain qualified senior personnel and our failure to do so could have an adverse effect on our ability to implement our business plan.

Significant disruptions of information technology systems or breaches of data security could adversely affect our business

Our business is increasingly dependent on complex and interdependent information technology systems, including internet-based systems, databases and programs, to support our business processes as well as internal and external communications. These computer systems are potentially vulnerable to breakdown, malicious intrusion and computer viruses which may result in the impairment of production and key business processes or loss of data or information. Additionally, our systems are potentially vulnerable to data security breaches—whether by employees, consultants or others—which may expose sensitive data to unauthorized persons. Such data security breaches could lead to the loss of trade secrets or other intellectual property, or could lead to the public exposure of personal information (including sensitive personal information) of our employees, clinical trial

patients and others. Such disruptions and breaches of security could have a material adverse effect on our business, financial condition and results of operations.

Risks Relating to our Financial Position and Operations

We have a history of operating losses. We expect to continue to incur losses for the near future, and we may never become profitable.

With the exception of a one-time licensing fee payment that we previously received in connection with our entering into a research and license option agreement covering one of our monoclonal antibody product candidates with a third party who did not subsequently exercise that option, we have not generated any revenues and have incurred operating losses since our inception, and we expect to continue to incur operating losses for the foreseeable future. As of December 31, 2016 , we had an accumulated deficit of $96.2 million . We do not have any products that generate revenue from commercial product sales. Our operating losses have resulted principally from costs incurred in pursuing our research and development programs, clinical trials, manufacturing, and general and administrative expenses in support of operations. We may be unable to develop or market products in the future that will generate revenues, and any revenues generated may not be sufficient for us to become profitable. In the event that our operating losses are greater than anticipated or continue for longer than anticipated, we will need to raise significant additional capital sooner, or in greater amounts, than otherwise anticipated in order to be able to continue development of our present product candidates or future product candidates that we may develop and maintain our operations. There can be no assurances that capital will be available to us when and if we require additional capital on terms that are acceptable to us or favorable to our existing stockholders, or at all.

As our product candidates advance in clinical development, we will require significant additional funding, and our future access to capital is uncertain.

It is expensive to develop and commercialize cancer immunotherapy candidates and the study size requirements and costs for product candidates such as ICT-107 may not be feasible due to our inability to raise sufficient capital. For example, we estimate that the remaining external cost of completing our ICT-107 phase 3 clinical trial will be approximately $50 to $55 million. Our existing resources will not be sufficient for us to complete the phase 3 trial and our current award funding from CIRM will only result in $14.5 million of additional funding if we can timely and successfully achieve the enrollment milestones for reimbursement under the award. As a result, we expect that we will need to raise significant additional capital to achieve the interim results and to complete the trial if the interim results are positive. It is possible that we will not achieve the progress that we expect with respect to ICT-107 because the actual costs and timing of conducting a large phase 3 clinical trial are difficult to predict and are subject to substantial risks and delays. Our product development efforts may not lead to commercial products, either because our product candidates fail to be found safe or effective in clinical trials or because we lack the necessary financial or other resources or relationships to pursue our programs through commercialization. Even if commercialized, a product may not achieve revenues that exceed the costs of producing and selling it. Our capital and future cash flow may not be sufficient to support the expenses of our operations and we may need to raise additional capital depending on a number of factors, including the following:

- the need to conduct larger, more expensive and longer clinical trials to obtain the data necessary for submission for product approval to regulatory agencies;
- the capability to manufacture product at the scale and quantities required to meet regulatory approval requirements and the development and commercial requirements for the product;
- the costs to obtain qualified commercial development of infrastructure and activities related to the commercialization of our products;
- the rate of progress and cost of our research and development and clinical trial activities; and
- the introduction into the marketplace of competing products and other adverse market developments.

As of February 28, 2017 , we had approximately $14.3 million available for offer and sale pursuant to our Sales Agreement with Cantor Fitzgerald & Co., as agent. Sales under our Sales Agreement are registered on a registration statement on Form S-3. Pursuant to Instruction I.B.6 to Form S-3, we may not sell more than the equivalent of one-third of our public float during any 12 consecutive months so long as our public float is less than $75 million, which will limit our ability to raise funds using our Sales Agreement. Other than our Sales Agreement and our award from CIRM, we currently do not have arrangements to obtain additional financing. Any such financing could be difficult to obtain on favorable terms or at all. If we are unable to raise additional funds, we may have to delay, reduce or eliminate some of our clinical trials and our development programs. Even if we raise additional funds by issuing equity or equity-linked securities, such financings may only be available on unattractive terms and, in such event, the market price of our common stock may decline and further dilution to our existing

stockholders will result. In addition, the expectation of future dilution as a result of our offering of securities convertible into equity securities may cause our stock price to decline.

We may seek Small Business Innovation Research or other government grants to conduct a portion of our planned research and development work in addition to certain equity financing. Except for one grant awarded under a federal tax credit/grant program for pharmaceutical research and development companies in 2010 and one grant application submitted under the Orphan Drug Act that was denied, we have not yet submitted any requests for these grants. The competition for obtaining these grants is intense and we may be unable to secure any grant funding on a timely basis or at all.

Our future capital needs are uncertain and our independent registered public accounting firm has expressed in its report on our 2016 audited financial statements a substantial doubt about our ability to continue as a going concern. Our ability to continue as a going concern is dependent on our ability to raise additional capital or obtain loans from financial institutions and our operations could be curtailed if we are unable to obtain the required additional funding when needed. We may not be able to do so when necessary, and/or the terms of any financings may not be advantageous to us.

Our financial statements for the year ended December 31, 2016 included in Item 8 of this Annual Report on Form 10-K have been prepared assuming we will continue to operate as a going concern. However, due to our ongoing operating losses, negative cash flows from operations, our need to finance to continue our ongoing clinical trials and conduct research and our accumulated deficit, there is substantial doubt about our ability to continue as a going concern. Because we continue to experience net operating losses, our ability to continue as a going concern is subject to our ability to obtain necessary funding from outside sources, including obtaining additional funding from the sale of our securities, grants or other forms of financing. Our continued net operating losses increase the difficulty in completing such sales or securing alternative sources of funding, and there can be no assurances that we will be able to obtain such funding on favorable terms or at all. If we are unable to obtain sufficient financing from the sale of our securities or from alternative sources, we may be required to reduce, defer or discontinue certain of our clinical development, research and operating activities or we may not be able to continue as a going concern. As a result, our independent registered public accounting firm has expressed in its auditors' report on the financial statements included in Item 8 of this Annual Report a substantial doubt regarding our ability to continue as a going concern. Our financial statements do not include any adjustments that might result from the outcome of the uncertainty regarding our ability to continue as a going concern. If we cannot continue as a going concern, our stockholders may lose their entire investment in the common stock. Future reports from our independent registered public accounting firm may also contain statements expressing doubt about our ability to continue as a going concern.

We are required to pay certain royalties under our license agreements with third party licensors, and we must meet certain milestones to maintain our license rights.

Under our license agreements with academic institutions generally, including our Cedars-Sinai license for ICT-107, we will be required to pay substantial royalties to that institution based on our revenues from sales of our products utilizing the technologies and products licensed from the institution, and these royalty payments could adversely affect the overall profitability for us of any products that we may seek to commercialize. In order to maintain our license rights under these license agreements, we will need to meet certain specified milestones, subject to certain cure provisions, in the development of our vaccine product candidates and in the raising of funding. In addition, many of these agreements contain diligence milestones and we may not be successful in meeting all of the milestones in the future on a timely basis or at all. We will need to outsource and rely on third parties for many aspects of the clinical development, manufacture, sales and marketing of our products covered under our license agreements, including the Cedars-Sinai license for ICT-107. Delay or failure by these third parties could adversely affect the continuation of our license agreements with their party licensors.

Risks Relating to SEC Investigation

The proposed agreement in principle with the SEC may not become final in its proposed form and could be materially more adverse to us than currently anticipated .

On December 8, 2016, we signed an offer of settlement with the SEC related to an investigation principally of a former Chief Executive Officer involving conduct between November 2011 and August 2012 regarding the publication of articles without disclosing that they were paid for by us or investor relations firms hired by us. The offer of settlement provided that, without admitting or denying allegations, we would consent to the entry of an administrative order requiring that we cease and desist from any future violations of Sections 17(a) and 17(b) of the Securities Act of 1933, as amended, and Section 10(b) of the Securities Exchange Act of 1934, as amended, and Rule 10b-5 thereunder, subject to approval by the Commissioners of the SEC. The proposed settlement also involves the adoption of certain corporate governance amendments to our policies and practices, in particular as it relates to the retention of investor relations and public relations firms. The proposed settlement is

contingent upon approval by the Commissioners of the SEC, which cannot be assured. Based upon the offer of settlement, we have not accrued and do not currently expect to accrue a liability related to this matter. However, the settlement must be approved by the Commissioners of the SEC. If the Commissioners of the SEC do not approve the settlement, we may need to enter into further discussions with the SEC to resolve the investigated matters on different terms and conditions. As a result, there can be no assurance as to the final terms of any settlement including its financial impact or any future adjustment to the financial statements.

Risks Relating to the Transfer of Certain Intellectual Property Rights to our Foreign Subsidiary

We may need to utilize all of our available net operating losses, and we may be subject to additional income taxes or an alternative minimum tax, in connection with our transfer of certain intellectual property rights to our foreign subsidiary.

During the fourth quarter of 2014, we licensed the non-U.S. rights to a significant portion of our intellectual property to our Bermuda-based subsidiary for approximately $11.0 million. The fair value of the intellectual property rights were determined by an independent third party. The proceeds from this sale represent a gain for U.S. tax purposes and will be offset by current year losses. However, the Internal Revenue Service, or the IRS, or the California Franchise Tax Board, or the CFTB, could challenge the valuation of the intellectual property rights and assess a greater valuation, which would require us to utilize a portion, or all, of our available net operating losses. If an IRS or a CFTB valuation exceeds our available net operating losses, we would incur additional income taxes. Our ability to use our net operating losses is subject to the limitations of IRS Section 382, as well as expiration of federal and state net operating loss carryforwards. Additionally, in the event our net operating losses were sufficient to offset the regular income taxes associated with an IRS or a CFTB revaluation of the intellectual property transferred to our Bermuda subsidiary, we would be subject to alternative minimum tax.

Risks Relating to Reliance on Third Parties

We outsource almost all of our operational and development activities, and if any party to which we have outsourced certain essential functions fails to perform its obligations under agreements with us, the development and commercialization of our lead product candidate and any future product candidates that we may develop could be delayed or terminated.

We generally rely on third-party consultants or other vendors to manage and implement the day-to-day conduct of our operations, including conducting clinical trials and manufacturing our current product candidates or any future product candidates that we may develop. Accordingly, we are and will continue to be dependent on the timeliness and effectiveness of their efforts. Our dependence on third parties includes key suppliers and third party service providers supporting the development, manufacture and regulatory approval of our products as well as support for our information technology systems and other infrastructure, including our network of leukapheresis providers. While our management team oversees these vendors, failure of any of these third parties to meet their contractual, regulatory and other obligations or the development of factors that materially disrupt the performance of these third parties could have a material adverse effect on our business. For example, all of the key oversight responsibilities for the development and manufacture of ICT-107, our lead product candidate, are conducted by our management team but all activities are the responsibility of third party vendors.

If a clinical research organization, or CRO, that we utilize is unable to allocate sufficient qualified personnel to our studies in a timely manner or if the work performed by it does not fully satisfy the requirements of the FDA or other regulatory agencies, we may encounter substantial delays and increased costs in completing our development efforts. Any manufacturer that we select may encounter difficulties in the manufacture of new products in commercial quantities, including problems involving product yields, product stability or shelf life, quality control, adequacy of control procedures and policies, compliance with FDA regulations and the need for further FDA approval of any new manufacturing processes and facilities. For example, in August 2016, we were notified by our manufacturer producing clinical supplies for our phase 3 trial in ICT-107 that it had experienced a possible mycoplasma contamination in one healthy donor validation manufacturing run. Subsequent tests were unable to positively identify the presence of mycoplasma. In October 2016, we were notified of an additional potential mycoplasma contamination in a manufacturing run. If microbial, viral or other contaminations, including mycoplasma, are discovered in our product candidates or in the manufacturing facilities in which our product candidates are made, such manufacturing facilities may need to be closed for an extended period to investigate and remedy the contamination, and manufacturing of our clinical supplies and enrollment in our trials may be delayed.

The manufacture of clinical supplies for studies and commercial quantities of our current product candidates and any future product candidates that we may develop are likely to be inherently more difficult and costly than typical chemical pharmaceuticals. This could delay commercialization of any of our product candidates or reduce the profitability of these candidates for us. If any of these occur, the development and commercialization of our product candidates could be delayed, curtailed or terminated because we may not have sufficient financial resources or capabilities to continue such development and commercialization on our own. If we rely on only one source for the manufacture of the clinical or commercial supplies of any

of our product candidates or products, any production problems or supply constraints with that manufacturer could adversely impact the development or commercialization of that product candidate or product.

If we or our contractors or service providers fail to comply with regulatory laws and regulations, we or they could be subject to regulatory actions, which could affect our ability to develop, market and sell our product candidates and any other or future product candidates that we may develop and may harm our reputation.

If we or our manufacturers or other third party contractors fail to comply with applicable federal, state or foreign laws or regulations, we could be subject to regulatory actions, which could affect our ability to develop, market and sell our current product candidates or any future product candidates under development successfully and could harm our reputation and lead to reduced or non-acceptance of our proposed product candidates by the market. Even technical recommendations or evidence by the FDA through letters, site visits, and overall recommendations to academia or biotechnology companies may make the manufacturing of a clinical product extremely labor intensive or expensive, making the product candidate no longer viable to manufacture in a cost efficient manner. The mode of administration may make the product candidate not commercially viable. The required testing of the product candidate may make that candidate no longer commercially viable. The conduct of clinical trials may be critiqued by the FDA, or a clinical trial site's Institutional Review Board or Institutional Biosafety Committee, which may delay or make impossible clinical testing of a product candidate. The Data Safety Monitoring Committee for a clinical trial established by us may stop a trial or deem a product candidate unsafe to continue testing. This may have a material adverse effect on the value of the product candidate and our business prospects.

We will need to outsource and rely on third parties for the clinical development and manufacture, sales and marketing of our current product candidates or any future product candidates that we may develop, and our future success will be dependent on the timeliness and effectiveness of the efforts of these third parties.

We do not have the required financial and human resources to carry out on our own all the pre-clinical and clinical development for our vaccine product candidates or any other or future product candidates that we may develop, and do not have the capability and resources to manufacture, market or sell our current product candidates or any future product candidates that we may develop. Our business model calls for the partial or full outsourcing of the clinical and other development and manufacturing, sales and marketing of our product candidates in order to reduce our capital and infrastructure costs as a means of potentially improving our financial position.

Risks Relating to our Intellectual Property

Our patents and maintenance of trade secrets may not protect the proprietary rights of our products, impairing our competitive position, and our business, financial condition and results of operations could be adversely affected.

Our ability to compete successfully will depend significantly on our ability to obtain patent coverage for our products throughout their product lifetimes, defend patents that may have issued, protect trade secrets and operate without infringing the proprietary rights of others or others infringing on our proprietary rights. Although Cedars-Sinai as our licensor has filed applications relative to a number of aspects of our cancer vaccine technology, we are responsible going forward to prosecute these patent applications. The patent situation in the fields of cancer vaccine technology and stem cell technologies is highly uncertain and involves complex legal and scientific questions.

Even if we have or are subsequently able to obtain patent protection for our vaccine product candidates or any of our other or future product candidates that we may develop, there is no guarantee that the coverage of these patents will be sufficiently broad to protect us from competitors with the same or similar technologies, or that we will be able to enforce our patents against potential infringement by third parties. Patent litigation is expensive, and we may not be able to afford the costs. We may not become aware on a timely basis that products we are developing or marketing infringe the rights of others, nor may we be able to detect unauthorized use or take appropriate and timely steps to enforce our own intellectual property rights. We may not hold or be able to obtain all of the proprietary rights to certain patents, process patents, and use patents that may be owned or controlled by third parties. As a result, we may be required to obtain additional licenses under third party patents to market certain of our potential products. If licenses are not available to us on acceptable terms, or at all, we may not be able to market these products or we may be required to delay marketing until the expiration of such patents. Protecting our intellectual property rights may also consume significant management time and resources.

Nondisclosure agreements with employees and third parties may not adequately prevent disclosure of trade secrets and other proprietary information.

In order to protect our proprietary technology and processes, we will also rely in part on nondisclosure agreements with our employees, licensing partners, consultants, agents and other organizations to which we disclose our proprietary

information. These agreements may not effectively prevent disclosure of confidential information, may be limited as to their term, and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. In addition, others may independently discover trade secrets and proprietary information, and in such cases, we could not assert any trade secret rights against such party. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position. Since we will rely on trade secrets and nondisclosure agreements, in addition to patents, to protect some of our intellectual property, there is a risk that third parties may obtain and improperly utilize our proprietary information to our competitive disadvantage. We may not be able to detect unauthorized use or take appropriate and timely steps to enforce our intellectual property rights.

The manufacture, offer for sale, use or sale of our current product candidates or any future product candidates that we may develop may infringe on the patent rights of others, and we may be forced to take additional licenses, or litigate if an intellectual property dispute arises.

Should third parties patent specific cells, systems, receptors, antigens or other items that we are seeking to utilize in our development activities, we may be forced to license rights from these parties or abandon our development activities if we are unable to secure these rights on attractive terms or at all. In light of the large number of companies and institutions engaged in research and development in the cellular therapy field, we anticipate that many parties will be seeking patent rights for many cellular based technologies and that licensing and cross-licensing of these rights among various competitors may arise. Specifically, our dendritic cell-based vaccine product candidates utilize multiple antigens for which we may be required to obtain licenses from one or more other parties before we can commercialize them. We may not be able to obtain all of the licenses that we may need on attractive terms or at all, which could result in our having to reformulate or abandon this product candidate or delay its development or commercialization until the expiration of third party patent rights.

If we infringe or are alleged to have infringed another party's patent rights, we may be required to defend an infringement action or challenge the validity of the patents in court. Patent litigation is costly and time consuming. We may not have sufficient resources to bring these actions to a successful conclusion. In addition, if we do not obtain a license, do not successfully defend an infringement action or are unable to have infringed patents declared invalid, we may:

- incur substantial monetary damages;
- encounter significant delays in marketing our current product candidates or any future product candidates that we may develop; or
- be unable to conduct or participate in the manufacture, use, offer for sale or sale of product candidates or methods of treatment requiring licenses.

Parties making such claims may be able to obtain injunctive relief that could effectively block our ability to further develop or commercialize our current product candidates or any future product candidates that we may develop in the United States and abroad and could result in the award of substantial damages. Defense of any lawsuit or failure to obtain any such license could substantially harm us. Litigation, regardless of outcome, could result in substantial cost to and a diversion of efforts by us.

Risks Related to our Common Stock

Our stock price may be volatile, and your investment in our common stock could decline in value.

The market prices for our common stock and the securities of other development stage pharmaceutical or biotechnology companies have been highly volatile and may continue to be highly volatile in the future. Between January 1, 2016 and February 28, 2017 , the stock price for our common stock has ranged from $1.83 to $15.20 . The following factors, in addition to other risk factors described in this section, may have a significant impact on the market price of our common stock:

- the progress and success of clinical trials and preclinical activities (including studies and manufacture of materials) of our product candidates conducted by us or our collaborative partners or licensees;
- the receipt or failure to receive the additional funding necessary to conduct our business;
- selling by large stockholders;
- presentations of detailed clinical trial data at medical and scientific conferences and investor perception thereof;
- announcements of technological innovations or new commercial products by our competitors or us;

- developments concerning proprietary rights, including patents by our competitors or us;
- developments concerning our collaborations;
- publicity regarding actual or potential medical results relating to products under development by our competitors or us;
- regulatory developments in the United States and foreign countries;
- manufacturing or supply disruptions at our contract manufacturers, or failure by our contract manufacturers to obtain or maintain approval of the FDA or comparable regulatory authorities;
- litigation or arbitration;
- economic and other external factors or other disaster or crisis; and
- period-to-period fluctuations in financial results.

Furthermore, during the last few years, the stock markets have experienced extreme price and volume fluctuations and the market prices of some equity securities continue to be volatile. These fluctuations often have been unrelated or disproportionate to the operating performance of these companies. These broad market and industry fluctuations, as well as general economic, political and market conditions such as recessions, interest rate changes or international currency fluctuations, may cause the market price of shares of our common stock to decline.

Future equity issuances or a sale of a substantial number of shares of our common stock may cause the price of our common stock to decline.

Because we will continue to need additional capital to continue to expand our business and our research and development activities, among other things, we may conduct additional equity offerings. In addition, pursuant to our Sales Agreement we may offer and sell, from time to time, shares of our common stock having an offering price up to an aggregate total of $15.1 million. As of February 28, 2017 , we had approximately $14.3 million available for offer and sale pursuant to our ATM facility. Sales under our ATM facility are registered on a registration statement on Form S-3. Under applicable rules and regulations, we may not sell more than the equivalent of one-third of our public float during any 12 consecutive months so long as our public float is less than $75 million, which would limit our ability to raise funds using our ATM facility. If we or our stockholders sell substantial amounts of our common stock (including shares issued upon the exercise of options and warrants) in the public market, the market price of our common stock could fall. A decline in the market price of our common stock could make it more difficult for us to sell equity or equity-related securities in the future at a time and price that we deem appropriate. Furthermore, if we obtain funds through a credit facility or through the issuance of debt or preferred securities, these securities would likely have rights senior to your rights as a common stockholder, which could impair the value of our common stock.

If we fail to adhere to the strict listing requirements of the NYSE MKT, we may be subject to delisting. As a result, our stock price may decline and our common stock may be delisted. If our stock were no longer listed on the NYSE MKT, the liquidity of our securities likely would be impaired.

Our common stock currently trades on the NYSE MKT under the symbol IMUC. If we fail to adhere to the NYSE MKT's strict listing criteria, our stock may be delisted. This could potentially impair the liquidity of our securities not only in the number of shares that could be bought and sold at a given price, which might be depressed by the relative illiquidity, but also through delays in the timing of transactions and the potential reduction in media coverage. As a result, an investor might find it more difficult to dispose of our common stock. We believe that current and prospective investors would view an investment in our common stock more favorably if it continues to be listed on the NYSE MKT.

Potential conflicts of interest could arise for certain members of our management team in the performance of their services for us.

Dr. John Yu is a full-time employee of Cedars-Sinai, which owns shares of our common stock and where we previously conducted and may in the future conduct research and development work, including clinical trials of our vaccine product candidates. Potential conflicts of interest could arise as a result, including for Dr. Yu in performing services for us and for Cedars-Sinai, in establishing the terms under which Cedars-Sinai performs work for us, and in Cedars-Sinai conducting the research. Dr. Yu and other scientists associated with Dr. Yu at Cedars-Sinai may perform research in the field of brain tumors that is sponsored by other third parties. We have no present right to acquire any interest in the intellectual property generated by this research, including several clinical trials with dendritic cell-based vaccines that have been completed or are planned to be initiated. These studies may compete for patients to be enrolled in our current or future clinical trials.

Substantial sales of our common stock could cause our common stock price to fall.

As of February 28, 2017 , we had 3,459,859 shares of common stock issued and another 1,871,222 shares of common stock issuable upon exercise of options or warrants, most of which are eligible to be publicly resold under current registration statements or pursuant to Rule 144. The possibility that substantial amounts of our common stock may be sold in the public market may adversely affect prevailing market prices for our common stock and could impair our ability to raise capital through the sale of our equity securities.

Two research reports were published by one of the underwriters after the initial filing of our registration statement in connection with our August 2016 underwritten public offering. If either of these research reports were held to violate the Securities Act, investors in that offering may have the right to seek refunds or damages.

On June 7, 2016 and June 8, 2016, after the initial filing of the registration statement in connection with our recent underwritten public offering, two research reports were written and distributed by Maxim Group LLC, one of the underwriters in the offering. These research reports were not intended to constitute offering materials in connection with this offering; however, there may nevertheless be a risk that the reports could be deemed prospectuses not meeting the requirements of the Securities Act, and the distribution of the reports could be found to be a violation of Section 5 of the Securities Act.

If the distribution of these research reports were to be held by a court to be a violation by us of Section 5 of the Securities Act, purchasers in the offering that received the research reports, if any, and potentially all purchasers of common stock in the offering would, under the Securities Act, have the right for a period of one year from the date of purchase to seek recovery of the consideration paid in connection with their purchase, or, if they had already sold the common stock purchased in the offering, sue us for damages resulting from their purchase. The total amount of these damages could potentially equal the gross proceeds of the offering, plus interest and the purchasers' attorneys' fees, if these investors seek recovery or damages after an entire loss of their investment. We also could be subject to potential enforcement actions by the Securities and Exchange Commission, which could result in injunctive relief or the imposition of fines. Although we would vigorously contest any claims brought on the basis of these research reports, there can be no guarantee that we would be successful in refuting any and all such claims. If any such claims were to succeed, we might not have sufficient funds to pay the resulting damages or to finance a repurchase of our common stock, and our reputation and our business could be materially and adversely affected.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

We currently maintain our corporate office in Calabasas, California under an operating lease through August 31, 2017 at a monthly rental rate of $8,554. We do not lease or own any other real property.

Item 3. Legal Proceedings.

We are not a party to any material legal proceedings. We may occasionally become subject to legal proceedings and claims that arise in the ordinary course of our business. It is impossible for us to predict with any certainty the outcome of any disputes that may arise, and we cannot predict whether any liability arising from claims and litigation will be material in relation to our financial position or results of operations.

On December 8, 2016, we signed an offer of settlement with the SEC related to an investigation principally of a former Chief Executive Officer involving conduct between November 2011 and August 2012 regarding the publication of articles without disclosing that they were paid for by us or investor relations firms hired by us. The offer of settlement provided that, without admitting or denying allegations, we would consent to the entry of an administrative order requiring that we cease and desist from any future violations of Sections 17(a) and 17(b) of the Securities Act of 1933, as amended, and Section 10(b) of the Securities Exchange Act of 1934, as amended, and Rule 10b-5 thereunder, subject to approval by the Commissioners of the SEC. The proposed settlement also involves the adoption of certain corporate governance amendments to our policies and practices, in particular as it relates to the retention of investor relations and public relations firms. The proposed settlement is contingent upon approval by the Commissioners of the SEC, which cannot be assured. Based upon the offer of settlement, we have not accrued and does not currently expect to accrue a liability related to this matter. However, the settlement must be approved by the Commissioners of the SEC. If the Commissioners of the SEC do not approve the settlement, we may need to enter into further discussions with the SEC to resolve the investigated matters on different terms and conditions. As a result,

there can be no assurance as to the final terms of any settlement including its financial impact or any future adjustment to the financial statements.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II.

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

Market Information

Our common stock has been traded on the NYSE MKT since May 30, 2012 under the symbol IMUC. Our common stock previously traded on the OTC Bulletin Board over-the-counter market. The following price information reflects inter-dealer prices, without retail mark-up, mark-down or commission and may not represent actual transactions:

Quarter Ended	High	Low
March 31, 2015	$ 32.81	$ 19.20
June 30, 2015	$ 21.60	$ 17.06
September 30, 2015	$ 25.40	$ 14.00
December 31, 2015	$ 21.20	$ 13.61
March 31, 2016	$ 15.03	$ 8.07
June 30, 2016	$ 13.60	$ 8.07
September 30, 2016	$ 10.60	$ 4.44
December 31, 2016	$ 4.80	$ 1.83

Stockholders

As of February 28, 2017 , there were approximately 102 holders of record of our common stock, not including any persons who hold their stock in "street name."

Dividend Policy

We have not paid any dividends on our common stock to date and do not anticipate that we will pay dividends in the foreseeable future. Any payment of cash dividends on our common stock in the future will be dependent upon the amount of funds legally available, our earnings, if any, our financial condition, our anticipated capital requirements and other factors that the Board of Directors may think are relevant. However, we currently intend for the foreseeable future to follow a policy of retaining all of our earnings, if any, to finance the development and expansion of our business and, therefore, do not expect to pay any dividends on our common stock in the foreseeable future.

Sales of Unregistered Securities

None.

Item 6. Selected Financial Data.

Not applicable.

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

You should read the information in this Item 7 together with our consolidated financial statements and notes thereto that appear elsewhere in this Annual Report. This Annual Report contains forward-looking statements that involve risks, uncertainties, and assumptions. Actual results may differ materially from those anticipated in these forward-looking statements as a result of various factors, including, but not limited to, those presented under "Risk Factors" included in Item 1.A of Part I and elsewhere in this Annual Report.

Overview

ImmunoCellular Therapeutics, Ltd. and its subsidiaries (the Company) is a biotechnology company that is seeking to develop and commercialize new therapeutics to fight cancer using the immune system.

The Company has been primarily engaged in the acquisition of certain intellectual property, together with development of its product candidates and the recent clinical testing for its immunotherapy product candidates, and has not generated any recurring revenues. We have begun phase 3 testing of our lead product candidate, ICT-107, in which we originally anticipated randomizing 414 patients at about 120 clinical sites in the United States, Canada and Europe. The Company submitted an amendment to the phase 3 protocol to the FDA on December 30, 2016 and plans to submit to regulatory agencies in Canada and the European countries participating in the trial during the first quarter of 2017 that modifies some elements of how patients qualify for the trial, raises the target number of randomized patients to 542, and extends completion of the trial to mid-2021. We have two other product candidates, ICT-140 and ICT-121, both with investigational new drug (IND) applications active at the US Food and Drug Administration (FDA). During the third quarter of 2016, the Company completed its enrollment of ICT-121 phase 1. We are holding the initiation of our ICT-140 trial until we can find a partner to share expenses or until we have secured sufficient financial resources to complete the ICT-107 phase 3 program. Additionally, the Company has acquired the rights to technology for the development of certain Stem-to-T-cell immunotherapies for the treatment of cancer. We have incurred operating losses and, as of December 31, 2016 , we have an accumulated deficit of $96,223,442 . We expect to incur significant research, development and administrative expenses before any of our products can be launched and recurring revenues generated.

For additional information about our plan of business operation, see the "Business" section of this Annual Report included in Item 1 of Part I.

Critical Accounting Policies and Management Estimates

Management's discussion and analysis of our financial condition and results of operations are based on our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these consolidated financial statements requires management to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, management evaluates its estimates, including those related to impairment of long-lived assets, including finite lived intangible assets, accrued liabilities, fair value of warrant derivatives and certain expenses. We base 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 that are not readily apparent from other sources. Actual results may differ materially from these estimates under different assumptions or conditions.

Our significant accounting policies are summarized in Note 2 of our consolidated financial statements. We believe the following critical accounting policies affect our more significant judgments and estimates used in the preparation of our consolidated financial statements:

Research and Development Costs

Although we believe that our research and development activities and underlying technologies have continuing value, the amount of future benefits to be derived from them is uncertain. Research and development costs are expensed as incurred. During the years ended December 31, 2016 , 2015 and 2014 , we recorded an expense of $ 19,105,727 , $ 10,896,591 and

$ 5,969,182 , respectively, related to research and development activities. We expect our research and development expenses in 2017 will increase compared to 2016 as we progress in the phase 3 trial of ICT-107 and as we develop our Stem-to-T-cell immunotherapies.

Stock-Based Compensation

Stock-based compensation expense is estimated as of the grant date based on the fair value of the award and is recognized as expense over the requisite service period, which generally equals the vesting period, based on the number of awards that are expected to vest. Estimating the fair value for stock options requires judgment, including the expected term of our stock options, volatility of our stock, expected dividends, risk-free interest rates over the expected term of the options and the expected forfeiture rate. In connection with our performance based programs, we make assumptions principally related to the number of awards that are expected to vest after assessing the probability that certain performance criteria will be met.

Income Taxes

The Company accounts for federal and state income taxes under the liability method, with a deferred tax asset or liability determined based on the difference between the financial statement and tax basis of assets and liabilities, as measured by the enacted tax rates. The Company's provision for income taxes represents the amount of taxes currently payable, if any, plus the change in the amount of net deferred tax assets or liabilities. A valuation allowance is provided against net deferred tax assets if recoverability is uncertain on a more likely than not basis. The Company recognizes in its consolidated financial statements the impact of an uncertain tax position if the position will more likely than not be sustained upon examination by a taxing authority, based on the technical merits of the position. The Company's policy is to recognize interest related to unrecognized tax benefits as interest expense and penalties as operating expenses. The Company is not currently under examination by any taxing authority nor has it been notified of an impending examination. The Company's tax returns for the years ended December 31, 2016 , 2015 , 2014 and 2013 remain open for possible review.

Fair Value of Financial Instruments

The carrying amounts reported in the balance sheets for cash, cash equivalents, and accounts payable approximate their fair values due to their quick turnover. The fair value of warrant liability is estimated using the Binomial Lattice option valuation model. The valuation of the Company's warrant liability is primarily dependent upon the volatility of the Company's stock and the remaining term of the underlying warrants.

California Institute of Regenerative Medicine

During 2015, the Company received an award from the California Institute of Regenerative Medicine (CIRM) of $19.9 million, of which $4 million was received by the Company during 2015, to partially fund the Company's phase 3 trial of ICT-107. In August 2016, the Company and CIRM modified the award such that the Company received an additional $1.5 million initial payment. The total amount of the award and other conditions remain unchanged. Under the terms of the award, the Company is required to share future ICT-107 related revenue with CIRM. The percentage of revenue sharing is dependent on the amount of the award received by the Company and whether the revenue is from product sales or license fees. As an alternative to revenue sharing, the Company has the option to convert the award to a loan. In the event the Company exercises its right to convert the award to a loan, it will be obligated to repay the loan including interest at the rate of the three-month LIBOR rate (0.92% as of December 31, 2016) plus 25% per annum. Since the Company may be required to repay some or all of the amounts awarded by CIRM, the Company has accounted for this award as a liability rather than revenue. Additionally, the Company has accrued interest on the loan at the aforementioned rate.

Reverse Stock Split

On November 18, 2016, the Company effected a one-for-forty reverse stock split of its common stock through an amendment to its amended and restated certificate of incorporation (the "COI Amendment"). As of the effective time of the reverse stock split, every forty shares of the Company's issued and outstanding common stock were converted into one issued and outstanding share of common stock, without any change in par value per share. The reverse stock split affected all shares of the Company's common stock outstanding immediately prior to the effective time of the reverse stock split, as well as the number of shares of common stock available for issuance under the Company's equity incentive plans and outstanding warrants. No fractional shares were issued as a result of the reverse stock split. Stockholders who would otherwise have been entitled to receive a fractional share received cash payments in lieu thereof. In addition, the COI Amendment reduced the number of authorized shares of common stock to 25.0 million .

As the par value per share of the Company's common stock remained unchanged at $0.0001 per share, a total of $8,805 was reclassified from common stock to additional paid-in capital. All references to shares of common stock and per share data for all periods presented in the accompanying financial statements and notes thereto have been adjusted to reflect the reverse stock split on a retroactive basis.

Results of Operations

For the Years Ended December 31, 2016 and 2015

Net Loss

We incurred a net loss of $22,085,702 during the year ended December 31, 2016 compared to a net loss of $12,790,814 during the year ended December 31, 2015. The increase in the net loss in 2016 is primarily due to an increase in research and development expenses related to the initiation of our ICT-107 phase 3 trial and general and administrative expenses, partially offset by an increase in the credit to other income related to the revaluation of our warrant derivatives.

Revenues

We did not have any revenue in the years ended December 31, 2016 or 2015 and we do not expect to have any revenue in 2017.

Expenses

Research and development expenses during the year ended December 31, 2016 were $19,105,727 compared to $10,896,591 for the year ended December 31, 2015. During 2016 we incurred expenses related to the initiation of our ICT-107 phase 3 trial. These expenses included site initiations, technology transfer to Europe and regulatory submissions in Canada and eight European countries. We began patient enrollment and randomized 14 patients. Additionally, we liberalized the enrollment criteria for ICT-121 and completed patient enrollment in phase 1. We expect these expenses to increase in future periods as we progress in the ICT-107 phase 3 trial and as we develop our Stem-to-T-cell immunotherapies. Our ICT-140 program remains on hold until we obtain financing sufficient to complete the ICT-107 trial or find a partner for this program.

Our general and administrative expenses for the years ended December 31, 2016 and 2015 were $5,006,398 and $4,616,500 respectively. The increase was primarily due to severance and related payroll expenses accrued to the former CEO of approximately $700,000.

During the year ended December 31, 2016, we incurred $3,114,457 in non-cash expenses, consisting of $1,228,987 of stock based compensation, $498,520 of financing expense associated with warrant repricing, $75,114 of depreciation expense and $1,311,836 of interest accrued on the CIRM award. These expenses were offset as the Company recognized a credit of $3,812,398 related to the revaluation of our warrant derivatives. During the year ended December 31, 2015, we incurred $1,175,065 in non-cash expenses, consisting of $916,028 of stock based compensation, $88,939 of financing expense associated with warrant repricing, $36,193 of depreciation expense and $133,905 of interest accrued on the CIRM award. These expenses were offset as the Company recognized a credit of $2,925,258 related to the revaluation of our warrant derivatives. The value of our warrant derivative is highly influenced by the price of our Company's common stock. As of December 31, 2016, the price of our common stock decreased to $2.05 per share compared to $14.40 per share at December 31, 2015 and $29.20 per share at December 31, 2014.

For the Years Ended December 31, 2015 and 2014

Net Loss

We incurred a net loss of $12,790,814 during the year ended December 31, 2015 compared to a net loss of $9,377,533 in the year ended December 31, 2014. The increase in the net loss in 2015 is primarily due to an increase in research and development expenses, general and administrative expenses and stock based compensation, partially offset by a credit to other income related to the revaluation of our warrant derivatives.

Revenues

We did not have any revenue in the years ended December 31, 2015 or 2014 and we do not expect to have any revenue in 2016.

Expenses

Research and development expenses during the year ended December 31, 2015 were $10,896,591 compared to $5,969,182 for the year ended December 31, 2014. During 2015 we incurred expenses related to the start-up and planning of our ICT-107 phase 3 trial. Additionally, we incurred expenses related to our Stem-to-T-cell immunotherapies for the treatment of cancer. We expect these expenses to increase in future periods as we progress in the ICT-107 phase 3 trial and as we develop our Stem-to-T-cell immunotherapies. As of December 31, 2014, our ICT-140 trial for ovarian cancer was placed on hold. As a result, we incurred minimal expense related to this program during 2015 and we expect future expenses to continue to decline until such time as we obtain additional financing or find a partner for this program.

Our general and administrative expenses for the years ended December 31, 2015 and 2014 were $4,616,500 and $3,889,359 respectively. The increase reflects additional professional fees incurred to support various contract negotiations, patent protection costs and governmental compliance.

During the year ended December 31, 2015, we incurred $1,175,065 in non-cash expenses, consisting of $916,028 of stock based compensation, $88,939 of financing expense associated with warrant repricing, $36,193 of depreciation expense and $133,905 of interest accrued on the CIRM award. These expenses were offset as the Company recognized a credit of $2,925,258 related to the revaluation of our warrant derivatives. During the year ended December 31, 2014, we incurred $764,599 in non-cash expenses, consisting of $654,260 of stock based compensation, $62,683 of financing expense associated with warrant repricing and $47,656 of depreciation expense. These expenses were partially offset as the Company recognized a credit of $529,774 related to the revaluation of our warrant derivatives. The value of our warrant derivative is highly influenced by the price of our Company's common stock. As of December 31, 2015, the price of our common stock decreased to $14.40 per share compared to $29.20 per share at December 31, 2014.

Liquidity and Capital Resources

As of December 31, 2016 , we had working capital of $10,175,846 , compared to working capital of $22,291,140 as of December 31, 2015 . The estimated cost of completing the development of any of our current immunotherapy product candidates and of obtaining all required regulatory approvals to market any of those product candidates is substantially greater than the amount of funds we currently have available. We expect our costs will increase in 2017 primarily to fund the phase 3 trial of ICT-107, and that we will not have enough cash resources to fund the business for the next 12 months. Successful completion of our research and development activities, and our transition to attaining profitable operations, is dependent upon obtaining financing. Additional financing may not be available on acceptable terms or at all. If we issue additional equity securities to raise funds, the ownership percentage of existing stockholders would be reduced. New investors may demand rights, preferences or privileges senior to those of existing holders of common stock. If we cannot raise funds, we might be forced to make substantial reductions in the on-going clinical trials, thereby damaging our reputation in the biotech and medical communities which could adversely affect our ability to implement our business plan and our viability. These factors raise substantial doubt about our ability to continue as a going concern.

On September 18, 2015, we received an award in the amount of $19.9 million from the California Institute of Regenerative Medicine (CIRM) to partially fund our phase 3 trial of ICT-107. The award provided for a $4 million project initial payment that we received in November 2015 and $15.9 million in future milestone payments that are primarily dependent on patient enrollment. In June 2016, the terms of the award from CIRM were amended to (i) increase the project initial payment by $1.5 million, which we received on July 18, 2016, and (ii) reduce the potential future milestone payments by a corresponding $1.5 million. The potential total amount of the award from CIRM remains at $19.9 million. Our next award will be $4.5 million when the phase 3 trial of ICT-107 is 25% enrolled. We are obligated to share future ICT-107 related revenue with CIRM. The percentage of revenue sharing is dependent on the amount of the award received by us and whether the revenue is from product sales or license fees. The maximum revenue sharing amount we may be required to pay to CIRM is equal to nine times the total amount awarded and received by us. We have the option to decline any and all amounts awarded by CIRM. As an alternative to revenue sharing, we have the option to convert the award to a loan. We may exercise this loan conversion option until ten business days after the FDA notifies us that it has accepted our application for marketing authorization. In the event we exercise our right to convert the award to a loan, we will be obligated to repay the loan within ten business days of making the election including interest at the rate of the three-month LIBOR rate (0.92% as of December 31, 2016) plus 25% per annum. Since we may be required to repay some or all of the amounts awarded by CIRM, we are accounting for this award as a liability rather than revenue and accruing interest at the aforementioned rate.

In August 2016, we entered into an underwriting agreement with Maxim Group LLC, pursuant to which we received net proceeds of approximately $6.6 million (after deducting the underwriting discount and offering expenses) from the initial sale of 863,750 shares of the Company's common stock, base warrants to purchase 881,250 shares of common stock at an

exercise price of $7.68 per share, and pre-funded warrants to purchase 311,250 shares of common stock at an exercise price of $0.40 per share. The underwriters partially exercised their option to purchase additional shares and warrants, and purchased an additional 37,500 shares of our common stock at a price of $6.00 per share and base warrants to purchase 111,965 shares of common stock at $0.40 per warrant. The pre-funded warrants have a term of ten years and the base warrants have a term of five years from the date of issuance. They also provide for a weighted average adjustment to the exercise price if we issue, or are deemed to issue, additional shares of common stock at a price per share less than the then effective price of the warrants, subject to certain exceptions. Accordingly, these warrants were accounted for as derivative liabilities and $2.2 million of the net proceeds was allocated to the warrant derivative. The pre-funded warrants were substantially paid for at the time of the offering and have an exercise price of $0.40 per share. Through December 31, 2016, 208,750 pre-funded warrants were exercised and resulted in proceeds to the Company of $83,500.

On February 12, 2015, we entered into an underwriting agreement with Roth Capital Partners, LLC, pursuant to which we sold 666,250 shares of our common stock and warrants to purchase 466,369 shares of our common stock at a combined public offering price of $24.00 per share and related warrant. The resulting aggregate net proceeds from the offering was approximately $14.5 million, after deducting underwriting discounts and other offering expenses payable by us of approximately $1.5 million. The warrants had an exercise price of $26.40 per share and a term of 60 months from the date of issuance. The warrants provide for a weighted-average adjustment to the exercise price if we issue or are deemed to issue additional shares of our common stock at a price per share less than the then effective exercise price of the warrants, subject to certain exceptions. Accordingly, these warrants have been accounted for as derivative liabilities and approximately $4.2 million of the net proceeds was allocated to the warrant derivative and the remaining $10.3 million was allocated to equity. During 2016, the exercise price of these warrants was adjusted to $20.00 to reflect the shares sold under our Controlled Equity Offering during 2016 and our August 2016 public offering.

On April 18, 2013, we entered into a Controlled Equity Offering [SM] Sales Agreement (the Sales Agreement) with Cantor Fitzgerald & Co., as agent (Cantor), pursuant to which we may offer and sell, from time to time through Cantor, shares of our common stock having an aggregate offering price of up to $25.0 million (of which only $17.0 million was initially registered for offer and sale). Under the Sales Agreement, Cantor may sell shares by any method permitted by law and deemed to be an “at-the-market” offering as defined in Rule 415 promulgated under the Securities Act, as amended, including sales made directly on the NYSE MKT, on any other existing trading market for our common stock or to or through a market maker. We may instruct Cantor not to sell shares if the sales cannot be effected at or above the price designated by us from time to time. We are not obligated to make any sales of the shares under the Sales Agreement. The offering of shares pursuant to the Sales Agreement will terminate upon the earlier of (a) the sale of all of the shares subject to the Sales Agreement or (b) the termination of the Sales Agreement by Cantor or the Company, as permitted therein. We will pay Cantor a commission rate of 3.0% of the aggregate gross proceeds from each sale of shares and have agreed to provide Cantor with customary indemnification and contribution rights. We will also reimburse Cantor for certain specified expenses in connection with entering into the Sales Agreement. On April 22, 2013, NYSE MKT approved the listing of 264,831 shares of our common stock in connection with the Sales Agreement. As of September 21, 2015, the registration statement previously filed with the SEC to facilitate the sale of registered shares of the Company’s stock under the Controlled Equity Offering expired. The Company filed a new registration statement with the SEC that was declared effective on January 19, 2016 to facilitate the sale of additional shares under the Controlled Equity Offering. Under the terms of the prospectus, the Company may sell up to $15,081,494 of the Company’s common stock through the aforementioned Controlled Equity Offering. Pursuant to Instruction I.B.6 to Form S-3 (the Baby Shelf Rules) the Company may not sell more than the equivalent of one-third of our public float during any 12 consecutive months so long as our public float is less than $75.0 million. During the year ended December 31, 2016, the Company sold 77,141 shares of our common stock under the Sales Agreement that resulted in net proceeds to the Company of approximately $691,187, of which $48,977 represented the recovery of deferred offering costs that had been incurred as of December 31, 2015. As of December 31, 2016, the Company had approximately $14.3 million available to be sold under the Sales Agreement. Our ability to use this Controlled Equity Offering may be impacted as a result of the going concern opinion we received from our auditors. See additional discussion in Note 6 to the audited financial statements that are included in this Form 10-K.

We may also in the future seek to obtain funding through strategic alliances with larger pharmaceutical or biomedical companies. We cannot be sure that we will be able to obtain any additional funding from either financings or alliances, or that the terms under which we may be able to obtain such funding will be beneficial to us. If we are unsuccessful or only partly successful in our efforts to secure additional financing, we may find it necessary to suspend or terminate some or all of our product development and other activities.

As of December 31, 2016 , we had no long-term debt obligations, no capital lease obligations, or other similar long-term liabilities, other than the CIRM award liability. We have various purchase commitments for sponsored research, which are generally cancelable upon 30 to 120 day notice, and license fees. We have no financial guarantees, debt or lease agreements or

other arrangements that could trigger a requirement for an early payment or that could change the value of our assets, and we do not engage in trading activities involving non-exchange traded contracts.

We purchased in advance of the trial a significant portion of the supplies that will be used as part of the phase 3 trial of ICT-107 as we determined that it was more economical to purchase these supplies in bulk from the manufacturer. Accordingly, these supplies have been capitalized on the balance sheet with those supplies that are expected to be used during the next twelve months included in current assets and the remainder as non-current assets. Peptides and LPS make up the majority of the supplies that have been purchased in advance of the trial. These supplies will be expensed over the course of the trial as patients are enrolled and product is used.

Certain of the phase 3 ICT-107 vendors required deposits at the outset of the trial. Most vendors will use these deposits to offset invoices at the conclusion of the trial. Accordingly, these deposits are classified as non-current assets on the balance sheet. These deposits are refundable in the event the trial is terminated prior to its conclusion with the vendor applying the deposit against the costs of winding down the trial.

Cash Flows

For the Year Ended December 31, 2016 and 2015

We used $19,864,442 of cash in our operations during the year ended December 31, 2016, compared to $19,039,401 during the year ended December 31, 2015. During 2016, we incurred expenses related to the initiation of our ICT-107 phase 3 trial. These expenses included site initiations, technology transfer to Europe and regulatory submissions in Canada and eight European countries. We began patient enrollment and randomized 14 patients. Additionally, we liberalized the enrollment criteria for ICT-121 and completed patient enrollment in phase 1. We expect these expenses to increase in future periods as we progress in the ICT-107 phase 3 trial and as we develop our Stem-to-T-cell immunotherapies. Also during 2016, we offset $2,220,766 of vendor deposits against trial related expenses. Our ICT-140 program remains on hold until we obtain financing sufficient to complete the ICT-107 trial or find a partner for this program.

During 2016, we incurred a non-cash credit of $3,812,398 related to the revaluation of our warrant derivatives and we incurred a non-cash charge of $498,520 related to the increase in the number of warrants outstanding that was triggered by the underwritten public offering in February 2015 and we also accrued $1,311,836 of interest expense related to the CIRM award. During 2015, we incurred a non-cash credit of $2,925,258 related to the revaluation of our warrant derivatives and we incurred a non-cash charge of $88,939 related to the increase in the number of warrants outstanding that was triggered by the underwritten public offering in February 2015 and we accrued $133,905 of interest expense related to the CIRM award.

During the year ended December 31, 2016, our investing cash flows used $4,015. During the year ended December 31, 2015, our investing cash flows used $169,750 primarily to acquire research equipment to support the phase 3 trial of ICT-107.

We received $8,701,094 from financing activities in 2016, consisting of $6,554,618 net proceeds from the issuance of common stock, warrants and pre-funded warrants in an underwritten public offering, $1,500,000 additional initial award from CIRM and $691,187, net of commissions and professional fees, through the sale of our common stock in our Controlled Equity Offering. We received $18,591,336 from financing activities in 2015, consisting of $14,599,627 net proceeds, excluding $105,563 of deferred offering costs that were previously advanced by the Company, from the issuance of common stock and warrants in an underwritten public offering and $6,750 from the exercise of stock options. The Company also received its initial $4,000,000 award from CIRM.

For the Year Ended December 31, 2015 and 2014

We used $19,039,401 of cash in our operations during the year ended December 31, 2015, compared to $9,936,802 during the year ended December 31, 2014. During 2015, we incurred expenses related to the start-up and planning of our ICT-107 phase 3 trial. We also made deposits of approximately $3.6 million with Novella Clinical LLC, the project's clinical research organization, and other key vendors. These deposits will be applied by the vendors against the final amounts owed by the Company at the end of the trial. Additionally, we purchased many of the supplies that will be used during the course of the trial. We also incurred certain expenses related to the development of certain Stem-to-T-cell immunotherapies for the treatment of cancer. We expect these expenses to increase in future periods as we progress in the ICT-107 phase 3 trial and as we develop our Stem-to-T-cell immunotherapies. As of December 31, 2014, our ICT-140 ovarian cancer program was placed on hold. As a result, we incurred minimal expenses related to this trial during 2015 and we expect future expenses to continue to decline until such time as we secure a partner for this program or obtain sufficient financial resources to complete the ICT-107 phase 3 program. During 2014, we incurred a non-cash credit of $529,774 related to the revaluation of our warrant derivatives and we incurred a non-cash charge of $62,683 related to the increase in the number of warrants outstanding that was triggered by the issuance of common stock as part of our controlled equity offering. During 2015, we incurred a non-cash credit of $2,925,258

related to the revaluation of our warrant derivatives and we incurred a non-cash charge of $88,939 related to the increase in the number of warrants outstanding that was triggered by the underwritten public offering in February 2015.

During the year ended December 31, 2015, our investing cash flows used $169,750 primarily to acquire research equipment to support the phase 3 trial of ICT-107. During the year ended December 31, 2014, our investing cash flows used $28,575 primarily to acquire research and development equipment.

We received $18,591,336 from financing activities in 2015, consisting of $14,599,627 net proceeds, excluding $105,563 of deferred offering costs that were previously advanced by the Company, from the issuance of common stock and warrants in an underwritten public offering and $6,750 from the exercise of stock options. The Company also received its initial $4,000,000 award from CIRM. We received $5,541,322 from financing activities in 2014, consisting of $1,045,000 from the exercise of stock options and $4,496,322 net proceeds from our controlled equity offering.

Off-Balance Sheet Arrangements

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

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

Not applicable.

Item 8. Financial Statements and Supplementary Data.

Our consolidated financial statements and notes thereto and the related reports of Marcum LLP are included in this Annual Report on Form 10-K beginning at page F-1 and are incorporated herein by reference.

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

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in the reports that we file with the SEC under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to our management, including our principal executive and financial officers, as appropriate, to allow for timely decisions regarding required disclosure. As required by SEC Rule 15d-15(b), we carried out an evaluation, under the supervision and with the participation of our management, including our principal executive and financial officers, of the effectiveness of the design and operation of our disclosure controls and procedures as of December 31, 2016 , which is the end of the period covered by this report. Based on the foregoing, our principal executive and financial officers concluded that our disclosure controls and procedures were effective as of December 31, 2016 .

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act, and for assessing the effectiveness of internal control over financial reporting.

Internal control over financial reporting is intended to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States. Internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets, (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with accounting principles generally accepted in the United States and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors, and (3) provide

reasonable assurance regarding prevention or timely detection of unauthorized acquisitions, use, or disposition of our assets that could have a material effect on our consolidated financial statements.

Management, with the participation of our principal executive and financial officers, conducted an evaluation of the effectiveness of our internal control over financial reporting, as of December 31, 2016 , based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013. Based upon its evaluation, management concluded that, as of December 31, 2016 , our internal control over financial reporting was effective.

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

Pursuant to applicable SEC rules and regulations, we are not required to obtain an attestation report of our independent registered public accounting firm regarding internal control over financial reporting.

Changes in Internal Control Over Financial Reporting

There was no change in our internal control over financial reporting during the quarter ended December 31, 2016 that materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

None.

PART III.

Item 10. Directors, Executive Officers and Corporate Governance.

We will file with the SEC a definitive Proxy Statement (the 2017 Proxy Statement), not later than 120 days after the fiscal year ended December 31, 2016 . The information required by this item is incorporated herein by reference to the information contained in the 2017 Proxy Statement.

Item 11. Executive Compensation

The information required by this item is incorporated herein by reference to the information contained in the 2017 Proxy Statement.

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

The information required by this item is incorporated herein by reference to the information contained in the 2017 Proxy Statement.

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

The information required by this item is incorporated herein by reference to the information contained in the 2017 Proxy Statement.

Item 14. Principal Accounting Fees and Services.

The information required by this item is incorporated herein by reference to the information contained in the 2017 Proxy Statement.

PART IV.

Item 15. Exhibits and Financial Statement Schedules

The company's consolidated financial statements and related notes thereto are listed and included in this Annual Report beginning on page F-1, which information is incorporated herein by reference. The following exhibits are filed with, or are incorporated by reference into, this Annual Report.

Exhibit	Description	Incorporation by Reference				Filed Herewith
		Form	SEC File No.	Exhibit	Filing Date	
2.1	Agreement and Plan of Reorganization dated as of May 5, 2005, as amended, among Patco Industries Subsidiary, Inc., William C. Patridge, and Spectral Molecular Imaging, Inc., as amended on June 30, 2005, September 26, 2005 and January 20, 2006	8-K	033-17624-NY	2.1	1/26/2006	
3.1	Amended and Restated Certificate of Incorporation	8-K	001-35560	3.1	9/24/2013	
3.2	Certificate of Amendment to Amended and Restated Certificate of Incorporation	8-K	001-35560	3.1	11/19/2015	
3.3	Certificate of Amendment to Amended and Restated Certificate of Incorporation	8-K	001-35560	3.1	11/18/2016	
3.4	Amended and Restated Bylaws	S-8	333-171652	3.1	1/11/2011	
3.5	Amendment to the Amended and Restated Bylaws	8-K	001-35560	3.1	5/25/2012	
4.1	Form of Common Stock Certificate of the Registrant	SB-2	333-140598	4.1	2/12/2007	
4.2	Form of Warrant to Purchase Common Stock, originally issued in February 2011	8-K	033-17264-NY	4.1	2/25/2011	
4.3	Form of Warrant to Purchase Common Stock, originally issued in January 2012	8-K	033-17264-NY	4.1	1/10/2012	
4.4	Form of Warrant to Purchase Common Stock, originally issued in October 2012	8-K	001-35560	10.1	10/19/2012	
4.5	Form of Warrant to Purchase Common Stock, originally issued in February 2015	10-Q	001-35560	4.1	5/11/2015	
4.6	Form of Base Warrant to Purchase Common Stock, originally issued in August 2016	S-1/A	001-35560	4.8	8/4/2016	
4.7	Form of Pre-Funded Warrant to Purchase Common Stock, originally issued in August 2016	S-1/A	001-35560	4.9	8/4/2016	
10.1	Amended and Restated 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	11/14/2011	
10.2	Form of Non-Qualified Stock Option Agreement for the 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	S-8	333-147278	4.5	11/9/2007	
10.3	Form of Incentive Stock Option Agreement for the 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	S-8	333-147278	4.6	11/9/2007	
10.4†	Exclusive License Agreement dated as of November 17, 2006 between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.1	11/22/2006	
10.5†	First Amendment to Exclusive License Agreement dated as of June 16, 2008, between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.2	08/14/2008	
10.6	Stock Purchase Agreement dated as of November 17, 2006 between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.3	11/22/2006	

10.7	Registration Rights Agreement dated as of November 17, 2006 between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.4	11/22/2006	
10.8	Securities Purchase Agreement dated as of November 17, 2006 between Dr. John Yu and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.5	11/22/2006	
10.9**	Agreement dated as of November 17, 2006 between Dr. John Yu and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.2	11/22/2006	
10.10**	Nonqualified Stock Option Agreement dated as of November 17, 2006 between Dr. John Yu and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.6	11/22/2006	
10.11	Registration Rights Agreement dated as of November 17, 2006 between Dr. John Yu and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.7	11/22/2006	
10.12	Agreement dated as of February 14, 2008 between Molecular Discoveries, LLC and ImmunoCellular Therapeutics, Ltd.	10KSB	033-17264-NY	10.20	03/25/2008	
10.13	Registration Rights Agreement dated as of April 14, 2008, between Molecular Discoveries, LLC and ImmunoCellular Therapeutics, Ltd.	S-1	333-150277	10.24	04/16/2008	
10.14	Agreement dated as of August 1, 2008 between Dr. Cohava Gelber and ImmunoCellular Therapeutics, Ltd.	10-K	001-35560	10.1	03/30/2009	
10.15	Second Amendment dated August 1, 2009 to Exclusive License Agreement dated as of November 17, 2006 between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.1	11/13/2009	
10.16	Preferred Stock Purchase Agreement dated as of December 3, 2009 between ImmunoCellular Therapeutics, Ltd. and Socius Capital Group, LLC d/b/a Socius Life Sciences Capital Group, LLC.	8-K	033-17264-NY	10.1	12/03/2009	
10.17**	Agreement dated March 1, 2010 between Dr. John Yu and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.36	03/31/2010	
10.18	Securities Purchase Agreement dated March 11, 2010 between participants in the March 2010 private placement and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.6	05/181/2010	
10.19	Form of Registration Rights Agreement dated as of March 29, 2010 between participants in the March 2010 private placement and ImmunoCellular Therapeutics, Ltd.	S-1/A	333-150277	10.27	05/12/2010	
10.20	Modification Agreement dated May 2, 2010 among Socius CG II, Ltd., Socius Life Sciences Capital Group, LLC and ImmunoCellular Therapeutics, Ltd.	S-1/A	333-150277	10.33	05/12/2010	
10.21	Third Amendment dated March 26, 2010 to Exclusive License Agreement dated as of November 17, 2006 between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	S-1/A	333-150277	10.35	05/12/2010	
10.22	Securities Purchase Agreement dated May 12, 2010 between participants in the May 2010 private placement and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.11	05/18/2010	
10.23	Form of Registration Rights Agreement between participants in the May 2010 private placement and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.12	05/18/2010	

10.24	Purchase Agreement, dated as of February 22, 2011, by and between the ImmunoCellular Therapeutics, Ltd. and each investor named therein.	10-Q	001-35560	10.1	5/11/2015	
10.25	Registration Rights Agreement, dated as of February 22, 2011, by and among ImmunoCellular Therapeutics, Ltd. and the investors named therein.	8-K	033-17264-NY	10.2	02/25/2011	
10.26†	Exclusive Sublicense Agreement dated May 28, 2010 between Targepeutics, Inc. and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.48	03/31/2011	
10.27†	Sponsored Research and Vaccine Production Agreement dated January 1, 2011 between The Trustees of the University of Pennsylvania and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.49	03/31/2011	
10.28	Placement agent agreement dated March 30, 2010 between Gilford Securities Incorporated and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.50	03/31/2011	
10.29	Placement agent agreement dated April 7, 2010 between Scarsdale Equities LLC and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.51	03/31/2011	
10.30	Consulting Agreement dated October 1, 2010 between JFS Investments and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.52	03/31/2011	
10.31	Advisory services agreement dated October 1, 2010 between Garden State Securities Inc. and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.53	03/31/2011	
10.32	Co-placement Agents Agreement dated January 31, 2011 among Summer Street Research Partners, Dawson James Securities, Inc. and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.54	03/31/2011	
10.33**	Agreement dated as of March 13, 2011 between Dr. John Yu and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.4	08/18/2011	
10.34†	Patent License Agreement, effective February 10, 2012, among The Trustees of the University of Pennsylvania and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.50	03/21/2012	
10.35†	Exclusive License Agreement, effective February 16, 2012, between the Johns Hopkins University and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.51	03/21/2012	
10.36	Office Lease dated July 1, 2012 between Regent Business Centers and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	08/14/2012	
10.37**	Employment Agreement dated December 3, 2012 between Andrew Gengos and ImmunoCellular Therapeutics, Ltd.	10-K	001-35560	10.54	03/11/2013	
10.38**	Form of Stock Option Grant Notice for the 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	10-K	001-35560	10.55	03/11/2013	
10.39	Controlled Equity Offering ^{SM} Sales Agreement dated April 18, 2013 between ImmunoCellular Therapeutics, Ltd. and Cantor Fitzgerald & Co.	8-K	001-35560	10.1	04/18/2013	
10.40**	Form of Indemnity Agreement between ImmunoCellular Therapeutics, Ltd. and each of its directors and executive officers.	10-Q	001-35560	10.1	05/10/2013	
10.41	Office Lease dated May 13, 2013 between Calabasas/Sorrento Square, LLC and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	08/08/2013	
10.42	Master Services Agreement dated September 1, 2010 between Averion International Corp. and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.2	08/08/2013	

10.43**	Employment Agreement dated August 19, 2013 between Anthony Gringeri and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	11/07/2013	
10.44†	Amendment No. 1 to the Exclusive License Agreement between the Johns Hopkins University and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.2	11/07/2013	
10.45**	Amended and Restated 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.3	11/07/2013	
10.46**	Amendment No. 1 to Amended and Restated 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.4	11/07/2013	
10.47**	Form of Stock Option Grant Notice for the 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.5	11/07/2013	
10.48	Master Services Agreement dated February 19, 2014 between Aptiv Solutions, Inc. and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10	03/14/2014	
10.49**	Employment Agreement dated January 30, 2015 between Steven J. Swanson and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	5/11/2015	
10.50†	Agreement for GMP Manufacturing of ICT-107 dated March 13, 2015 between PharmaCell B.V. and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.2	5/11/2015	
10.51†	Amended & Restated Exclusive License Agreement dated May 13, 2015 between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.2	8/7/2015	
10.52**	Form of Restricted Stock Unit Agreement for the 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	8/7/2015	
10.53†	Services Agreement dated June 11, 20015 between ImmunoCellular Therapeutics, Ltd and PCT, LLC, a Caladrius Company	10-Q	001-35560	10.3	8/7/2015	
10.54†	Second Amendment to Exclusive License Agreement dated August 7, 2015 between ImmunoCellular Therapeutics, Ltd. and Johns Hopkins University	10-Q	001-35560	10.1	11/9/2015	
10.55**	Employment Agreement dated September 15, 2015 between David Fractor and ImmunoCellular Therapeutics. Ltd., as amended on September 14, 2016	10-Q	001-35560	10.2	11/9/2015	
10.56**	Independent Contractor Services Agreement effective as of October 1, 2015 between John Yu and ImmunoCellular Therapeutics, Ltd.	10-K	001-35560	10.57	3/30/2016	
10.57**	Amended and Restated Independent Contractor Services Agreement dated February 1, 2016 between John Yu and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	5/13/2016	
10.58	2016 Equity Incentive Plan	S-1/A	333-211763	10.59	7/11/2016	
10.59	Forms of Stock Option Agreement, Notice of Grant of Stock Option, Restricted Stock Unit Grant Notice and Restricted Stock Award Grant Notice under the 2016 Equity Incentive Plan	S-1/A	333-211763	10.60	7/11/2016	
10.60	Non-Employee Director Compensation Plan	S-1/A	333-211763	10.61	7/11/2016	
10.61	First Amendment to Lease Extending Term executed on May 18, 2016 between Calabasas/Sorrento Square, LLC and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	8/22/2016	
10.62**	Separation Agreement dated December 13, 2016 between Andrew Gengos and ImmunoCellular Therapeutics, Ltd.					X

23.1	Consent of Marcum LLP					X
24.1	Power of Attorney (see signature page hereto)					X
31.1	Certification of the registrant's Principal Executive Officer under Exchange Act Rule 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
31.2	Certification of the registrant's Principal Financial Officer under Exchange Act Rule 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
32.1	Certification of the registrant's Principal Executive Officer under 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X
32.2	Certification of the registrant's Principal Financial Officer under 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X
101.INS	XBRL Instance Document					X
101.SCH	XBRL Taxonomy Extension Schema Document					X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document					X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document					X
101.LAB	XBRL Taxonomy Extension Label Linkbase Document					X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document					X

** Indicates a management contract or compensatory plan or arrangement

† Certain portions of the exhibit have been omitted based upon a request for confidential treatment filed by us with the Securities and Exchange Commission. The omitted portions of the exhibit have been separately filed by us with the Securities and Exchange Commission.

SIGNATURES

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

IMMUNOCELLULAR THERAPEUTICS, LTD.

March 9, 2017

By: /s/ Anthony Gringeri

Anthony Gringeri, Ph.D.

President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Andrew Gengos and David Fractor or either of them, his or her attorney-in-fact, each with the power of substitution, for him or her in any and all capacities, to sign any amendments to this Annual Report on Form 10-K, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact, or his or her substitute or substitutes, may do or cause to be done by virtue hereof.

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

Signature	Title	Date
/s/ Anthony Gringeri Anthony Gringeri, Ph.D.	President, Chief Executive Officer and Director	March 9, 2017
/s/ David Fractor David Fractor	Principal Financial and Accounting Officer	March 9, 2017
/s/ Andrew Gengos Andrew Gengos	Director	March 9, 2017
/s/ Rahul Singhvi Rahul Singhvi, Sc.D.	Director	March 9, 2017
/s/ Gary S. Titus Gary S. Titus	Director	March 9, 2017
/s/ John S. Yu John S. Yu, M.D.	Director	March 9, 2017
/s/ Gregg A. Lapointe Gregg A. Lapointe	Director	March 9, 2017
/s/ Mark A. Schlossberg Mark A. Schlossberg	Director	March 9, 2017

ImmunoCellular Therapeutics, Ltd.

Index to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm

To the Audit Committee of the
Board of Directors and Shareholders of
ImmunoCellular Therapeutics, Ltd.

We have audited the accompanying consolidated balance sheets of ImmunoCellular Therapeutics, Ltd. (the "Company") as of December 31, 2016 and 2015, and the related consolidated statements of operations, shareholders' equity and cash flows for the years ended December 31, 2016, 2015 and 2014. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of ImmunoCellular Therapeutics, Ltd. as of December 31, 2016 and 2015, and the consolidated results of its operations and its cash flows for the years ended December 31, 2016, 2015 and 2014 in conformity with accounting principles generally accepted in the United States of America.

The accompanying financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America, which contemplate continuation of the Company as a going concern. As discussed in Note 2 to the financial statements, the Company has an accumulated deficit as of December 31, 2016, and has incurred a significant net loss and sustained negative cash flows from operations since inception. In addition, the Company will need to raise significant capital within the next twelve months to continue its clinical trials. These matters raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regards to these matters are also described in Note 2. These financial statements do not include any adjustment that might result from the outcome of this uncertainty.

/s/ Marcum LLP

Marcum LLP
Irvine, CA
March 9, 2017

ImmunoCellular Therapeutics, Ltd.
Consolidated Balance Sheets

	December 31, 2016	December 31, 2015
Assets		
Current assets:		
Cash and cash equivalents	$ 11,437,118	$ 22,604,481
Supplies for clinical trials	1,186,186	1,158,632
Other assets	791,485	797,425
Total current assets	13,414,789	24,560,538
Property and equipment, net	109,823	180,922
Supplies for clinical trials	1,309,648	1,115,657
Deposits	1,955,514	4,176,280
Deferred financing costs	100,216	48,977
Total assets	$ 16,889,990	$ 30,082,374
Liabilities and Shareholders' Equity		
Current liabilities:		
Accounts payable	$ 1,342,126	$ 1,161,258
Accrued compensation and benefits	1,109,864	790,487
Accrued liabilities	786,953	317,653
Total current liabilities	3,238,943	2,269,398
CIRM liability	6,945,741	4,133,905
Warrant Liability	573,560	1,958,775
Total liabilities	10,758,244	8,362,078
Commitments and contingencies (Note 5)		
Shareholders' equity:		
Preferred stock $0.0001 par value, 1,000,000 shares authorized; 0 shares outstanding as of December 31, 2016 and December 31, 2015	—	—
Common stock, $0.0001 par value; 25,000,000 shares authorized as of December 31, 2016 and 2015 respectively; 3,444,859 and 2,257,718 shares issued and outstanding as of December 31, 2016 and December 31, 2015, respectively	344	225
Additional paid-in capital	102,354,844	95,857,811
Accumulated deficit	(96,223,442)	(74,137,740)
Total shareholders' equity	6,131,746	21,720,296
Total liabilities and shareholders' equity	$ 16,889,990	$ 30,082,374

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

ImmunoCellular Therapeutics, Ltd.

Consolidated Statements of Operations
For the Years Ended December 31,

	2016	2015	2014
Revenues	$ —	$ —	$ —
Expenses:			
Research and development	19,105,727	10,896,591	5,969,182
General and administrative	5,006,398	4,616,500	3,889,359
Total expenses	24,112,125	15,513,091	9,858,541
Loss before other income (expense) and taxes	(24,112,125)	(15,513,091)	(9,858,541)
Interest income	24,381	19,863	13,917
Interest expense	(1,311,836)	(133,905)	—
Financing expense	(498,520)	(88,939)	(62,683)
Change in fair value of warrant liability	3,812,398	2,925,258	529,774
Loss before taxes	(22,085,702)	(12,790,814)	(9,377,533)
Taxes	—	—	—
Net loss	$ (22,085,702)	$ (12,790,814)	$ (9,377,533)
Net loss per share	$ (7.89)	$ (5.87)	$ (6.26)
Weighted average number of shares outstanding basic and diluted:	2,798,881	2,180,092	1,497,877

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

ImmunoCellular Therapeutics, Ltd.

Consolidated Statements of Shareholders' Equity

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total
	Shares	Amount			
Balance at January 1, 2014	1,438,520	$ 144	$ 78,442,843	$ (51,969,393)	$ 26,473,594
Exercise of stock options	23,750	2	1,044,998	—	1,045,000
Cashless exercise of stock options	712	—	—	—	—
Stock based compensation	—	—	654,260	—	654,260
Common stock issued through controlled equity offering at $36.80 per share	127,103	13	4,496,309		4,496,322
Net loss	—	—	—	(9,377,533)	(9,377,533)
Balance at December 31, 2014	1,590,085	159	84,638,410	(61,346,926)	23,291,643
Exercise of stock options	625	—	6,750		6,750
Common stock and warrants issued for cash during February 2015 at $24.00 per unit, net of offering costs	666,250	66	10,296,623		10,296,689
Cashless exercise of stock options	258	—	—		—
Stock based compensation	500	—	916,028		916,028
Net loss	—	—	—	(12,790,814)	(12,790,814)
Balance at December 31, 2015	2,257,718	225	95,857,811	(74,137,740)	21,720,296
Stock based compensation	—	—	1,228,987	—	1,228,987
Common stock issued through controlled equity offering at an average price of $10.00 per share	77,141	8	642,202	—	642,210
Common stock and warrants issued for cash during August 2016 at $6.40 per unit, net of offering costs	1,110,000	111	4,625,844	—	4,625,955
Net loss	—	—	—	(22,085,702)	(22,085,702)
Balance at December 31, 2016	3,444,859	$ 344	$ 102,354,844	$ (96,223,442)	$ 6,131,746

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

ImmunoCellular Therapeutics, Ltd.

Consolidated Statements of Cash Flows
For the Years Ended December 31,

	2016	2015	2014
Cash flows from operating activities:			
Net loss	$ (22,085,702)	$ (12,790,814)	$ (9,377,533)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	75,114	36,193	47,656
Accrued Interest on CIRM award	1,311,836	133,905	—
(Gain) loss on disposal of assets	—	—	(4)
Change in fair value of warrant liability	(3,812,398)	(2,925,258)	(529,774)
Financing expense	498,520	88,939	62,683
Stock-based compensation	1,228,987	916,028	654,260
Changes in assets and liabilities:			
Other assets	5,940	422,448	(9,097)
Supplies for clinical trials	(221,545)	(2,209,192)	(227,097)
Deposits	2,220,766	(3,657,913)	(339,259)
Accounts payable	125,363	805,320	(644,587)
Accrued liabilities	788,677	140,943	425,950
Net cash used in operating activities	(19,864,442)	(19,039,401)	(9,936,802)
Cash flows from investing activities:			
Purchase of property and equipment	(4,015)	(169,750)	(28,975)
Proceeds from sale of property and equipment	—	—	400
Net cash used in investing activities	(4,015)	(169,750)	(28,575)
Cash flows from financing activities:			
Proceeds from exercise of stock options	—	6,750	1,045,000
Proceeds from exercise of warrants	208,750	—	—
Deferred financing costs	(44,711)	(15,041)	—
Proceeds from CIRM award	1,500,000	4,000,000	—
Proceeds from issuance of common stock and warrants, net of offering costs	6,345,868	14,599,627	—
Proceeds from issuance of common stock through controlled equity offering	691,187	—	4,496,322
Net cash provided by financing activities	8,701,094	18,591,336	5,541,322
Decrease in cash and cash equivalents	(11,167,363)	(617,815)	(4,424,055)
Cash and cash equivalents, beginning of period	22,604,481	23,222,296	27,646,351
Cash and cash equivalents, end of period	$ 11,437,118	$ 22,604,481	$ 23,222,296
Supplemental cash flows disclosures:			
Interest expense paid	$ —	$ —	$ —
Income taxes paid	$ —	$ —	$ —
Supplemental non-cash financing disclosures:			
Deferred offering costs included in accounts payable	$ 55,505	$ —	$ —

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

ImmunoCellular Therapeutics, Ltd.

Notes to Consolidated Financial Statements

1. Nature of Organization (Planned Principal Operations Have Not Commenced)

ImmunoCellular Therapeutics, Ltd. (the Company) is seeking to develop and commercialize new therapeutics to fight cancer using the immune system. These consolidated financial statements include the Company's wholly owned subsidiaries, ImmunoCellular Bermuda, Ltd. in Bermuda and ImmunoCellular Therapeutics (Ireland) Limited and ImmunoCellular Therapeutics (Europe) Limited in Ireland, that were formed during 2014.

The Company has been primarily engaged in the acquisition of certain intellectual property, together with development of its immunotherapy product candidates and the recent clinical testing activities for one of its immunotherapy product candidates, and has not generated any recurring revenues. The Company has begun phase 3 testing of its lead product candidate, ICT-107. The Company has two other product candidates, ICT -140 and ICT -121 , both with investigational new drug (IND) applications active at the US Food and Drug Administration (FDA). Currently, the Company has suspended development of ICT -140 until the Company has either secured a partner for the program or sufficient financial resources to complete the ICT -107 phase 3 program. Additionally, the Company has acquired the rights to technology for the development of certain Stem-to-T-cell immunotherapies for the treatment of cancer. The Company has incurred operating losses and, as of December 31, 2016 , the Company had an accumulated deficit of $96,223,442 . The Company expects to incur significant research, development and administrative expenses before any of its products can be launched and recurring revenues generated.

The Company's activities are subject to significant risks and uncertainties, including the failure of any of the Company's product candidates to achieve clinical success or to obtain regulatory approval. Additionally, it is possible that other companies with competing products and technology might obtain regulatory approval ahead of the Company. The Company will need significant amounts of additional funding in order to complete the development of any of its product candidates and the availability and terms of such funding cannot be assured.

2. Summary of Significant Accounting Policies and Going Concern

Principles of Consolidation – The accompanying consolidated financial statements include the accounts of the Company and its subsidiaries. All significant intercompany balances and transactions have been eliminated in consolidation.

Basis of presentation and going concern - The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. Since inception, the Company has been engaged in research and development activities and has not generated any cash flows from operations. Through December 31, 2016 , the Company has incurred accumulated losses of $96,223,442 and as of December 31, 2016 , the Company had $11,437,118 of cash. The Company expects that its costs will increase in 2017 primarily to fund the phase 3 trial of ICT-107, and that it will not have enough cash resources to fund the business for at least the next 12 months. Successful completion of the Company's research and development activities, and its transition to attaining profitable operations, is dependent upon obtaining additional financing. Additional financing may not be available on acceptable terms or at all. If the Company issues additional equity securities to raise funds, the ownership percentage of existing stockholders would be reduced. New investors may demand rights, preferences or privileges senior to those of existing holders of common stock. If the Company cannot raise funds, it might be forced to make substantial reductions in the on-going clinical trials thereby damaging the Company's reputation in the biotech and medical communities which could adversely affect the Company's ability to implement its business plan and its viability. These factors raise substantial doubt about the Company's ability to continue as a going concern within one year after the date the financial statements are issued. These financial statements do not include any adjustment that might result from the outcome of this uncertainty.

The Company's plans to improve its liquidity require the Company to raise additional financing through the issuance of financial instruments such as equity and warrants or through the receipt of grants and awards. Additionally, the Company is undertaking an evaluation of strategic alternatives, which may include a potential merger, consolidation, reorganization or other business combination, as well as the sale of the Company or the Company's assets. While the Company evaluates strategic alternatives, it plans to continue to advance its research and development strategies, including the execution of the phase 3 trial of ICT-107.

Cash and cash equivalents— The Company considers all highly liquid instruments with an original maturity of 90 days or less at acquisition to be cash equivalents. As of December 31, 2016 and December 31, 2015 , the Company had $3,462,617

and $21,818,229 , respectively, of certificates of deposit and U.S. Government issued notes. The Company places its cash and cash equivalents with various banks and U.S. Governmental Agencies in order to maintain insurance on all of its investments.

Property and Equipment —Property and equipment are stated at cost and depreciated using the straight-line methods based on the estimated useful lives (generally three to five years) of the related assets. Computer and computer equipment are depreciated over three years. Management continuously monitors and evaluates the realizability of recorded long-lived assets to determine whether their carrying values have been impaired. The Company records impairment losses on long-lived assets used in operations when events and circumstances indicate that the assets might be impaired and the nondiscounted cash flows estimated to be generated by those assets are less than the carrying amount of those assets. Any impairment loss is measured by comparing the fair value of the asset to its carrying amount. Repairs and maintenance costs are expensed as incurred.

Research and Development Expenses —Research and development expenses consist of costs incurred for direct research and development and are expensed as incurred.

Supplies - Supplies are stated at the lower of cost or market, with cost determined by the first-in, first-out basis and consist of items that will be used in the Company's ongoing clinical trials. Management analyzes historical and prospective usage to estimate obsolescence and did not record any reserve for obsolescence during the years ended December 31, 2016, 2015 and 2014. Additionally, management has estimated supply usage in the next twelve months to determine the balance sheet classification between current and non-current.

Stock Based Compensation— The Company records the cost for all share-based payment transactions in the Company's consolidated financial statements. Stock option grants issued to employees, officers and directors were valued using the Black-Scholes pricing model.

Fair value was estimated at the date of grant using the following weighted-average grant date assumptions:

	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014
Risk-free interest rate	1.31%	1.80%	1.64%
Expected dividend yield	None	None	None
Expected life	5.73 years	6.48 years	5.21 years
Expected volatility	82.2%	93.40%	90.6%
Expected forfeitures	—%	—%	—%

The weighted-average grant-date fair value of options granted during the year ended December 31, 2016 , 2015 and 2014 was $8.00 , $13.60 and $38.40 , respectively.

The risk-free interest rate used is based on the implied yield currently available in U.S. Treasury securities at maturity with an equivalent term. The Company has not declared or paid any dividends and does not currently expect to do so in the future. The expected term of options represents the period that our stock-based awards are expected to be outstanding and was determined based on projected holding periods for the remaining unexercised shares. Consideration was given to the contractual terms of our stock-based awards, vesting schedules and expectations of future employee behavior. The expected volatility is based upon the historical volatility of the Company's common stock. Forfeitures are accounted for when they occur.

The Company's stock price volatility and option lives involve management's best estimates, both of which impact the fair value of the option calculated and, ultimately, the expense that will be recognized over the life of the option.

When options are exercised, the Company's policy is to issue reserved but previously unissued shares of common stock to satisfy share option exercises. As of December 31, 2016 , the Company had 19,462,422 shares of authorized and unreserved common stock. As of December 31, 2016 , the Company had 199,197 shares of common stock reserved for its stock option plan.

No tax benefits were attributed to the stock-based compensation expense because a valuation allowance was maintained for all net deferred tax assets.

Income Taxes —The Company accounts for federal and state income taxes under the liability method, with a deferred tax asset or liability determined based on the difference between the financial statement and tax basis of assets and liabilities, as measured by the enacted tax rates. The Company's provision for income taxes represents the amount of taxes currently payable, if any, plus the change in the amount of net deferred tax assets or liabilities. A valuation allowance is provided against net deferred tax assets if recoverability is uncertain on a more likely than not basis. As of December 31, 2016 and 2015 , the Company fully reserved its deferred tax assets. The Company recognizes in its consolidated financial statements the impact of an uncertain tax position if the position will more likely than not be sustained upon examination by a taxing authority, based on the technical merits of the position. The Company's policy is to recognize interest related to unrecognized tax benefits as interest expense and penalties as operating expenses. As of December 31, 2016 and 2015 , the Company had no unrecognized tax benefits and as such, no liability, interest or penalties were required to be recorded. The Company does not expect this to change significantly in the next twelve months. The Company has determined that its main taxing jurisdictions are the United States of America and the State of California. The Company is not currently under examination by any taxing authority nor has it been notified of a pending examination. The Company's tax returns are generally no longer subject to examination for the years before December 31, 2011 for the state and December 31, 2012 for the federal taxing authority.

During 2014, the Company licensed the non-U.S. rights to a significant portion of its intellectual property to its Bermuda-based subsidiary for approximately $11.0 million . The fair value of the intellectual property rights was determined by an independent third party. The proceeds from this sale represent a gain for U.S. tax purposes and were offset by current year losses and net operating loss carryforwards. However, the Internal Revenue Service, or the IRS, or the California Franchise Tax Board, or the CFTB, could challenge the valuation of the intellectual property rights and assess a greater valuation, which would require the Company to utilize a portion, or all, of its available net operating losses. If an IRS or a CFTB valuation exceeds the available net operating losses, the Company would incur additional income taxes. The Company's ability to use its net operating losses is subject to the limitations of IRS Section 382, as well as expiration of federal and state net operating loss carryforwards.

Fair Value of Financial Instruments —The carrying amounts reported in the balance sheets for cash, cash equivalents, and accounts payable approximate their fair values due to their quick turnover. The fair value of warrant liability is estimated using the Binomial Lattice option valuation model.

Fair value for financial reporting is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The Company utilizes a fair value hierarchy which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The three levels of inputs that may be used to measure fair value are as follows:

Level 1 - quoted prices in active markets for identical assets or liabilities

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)

Warrant liabilities represent the only financial assets or liabilities recorded at fair value by the Company. The fair value of warrant liabilities are determined based on Level 1 or Level 3 inputs (See Note 6).

Reverse Stock Split - On November 18, 2016, the Company effected a one-for-forty reverse stock split of its common stock through an amendment to its amended and restated certificate of incorporation (the "COI Amendment"). As of the effective time of the reverse stock split, every forty shares of the Company's issued and outstanding common stock were converted into one issued and outstanding share of common stock, without any change in par value per share. The reverse stock split affected all shares of the Company's common stock outstanding immediately prior to the effective time of the reverse stock split, as well as the number of shares of common stock available for issuance under the Company's equity incentive plans and outstanding warrants. No fractional shares were issued as a result of the reverse stock split. Stockholders who would otherwise have been entitled to receive a fractional share received cash payments in lieu thereof. In addition, the COI Amendment reduced the number of authorized shares of common stock to 25.0 million .

As the par value per share of the Company's common stock remained unchanged at $0.0001 per share, a total of $8,805 was reclassified from common stock to additional paid-in capital during 2016. All references to shares of common stock and per share data for all periods presented in the accompanying financial statements and notes thereto have been adjusted to reflect the reverse stock split on a retroactive basis.

Use of Estimates —The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make certain estimates and assumptions about the future outcome of current transactions which may affect the reporting and disclosure of these transactions. Accordingly, actual results could differ from those estimates used in the preparation of these consolidated financial statements.

The following critical accounting policies affect the Company's more significant judgments and estimates used in the preparation of these financial statements:

Stock-Based Compensation - Stock-based compensation expense is estimated as of the grant date based on the fair value of the award and is recognized as expense over the requisite service period, which generally equals the vesting period, based on the number of awards that are expected to vest. Estimating the fair value for stock options requires judgment, including the expected term of our stock options, volatility of the Company's stock, expected dividends, risk-free interest rates over the expected term of the options and the expected forfeiture rate. In connection with performance based programs, the Company makes assumptions principally related to the number of awards that are expected to vest after assessing the probability that certain performance criteria will be met.

Warrant liability - The fair value of the Company's derivative warrants that are not traded on the NYSE MKT is estimated using the Binomial Lattice option valuation model.

The use of the Binomial Lattice option valuation model requires estimates including the volatility of the Company's stock, risk-free rates over the expected term of warrants and early exercise of the options.

Basic and Diluted Net Loss per Common Share —Basic and diluted net loss per common share are computed based on the weighted average number of common shares outstanding plus the pre-funded warrants (see Note 6) that were substantially paid for at the time of issuance. Common share equivalents (which consist of options and warrants other than the pre-funded warrants) are excluded from the computation of diluted net loss per share for the years ended December 31, 2016 , 2015 and 2014 , since the effect would be antidilutive. Common share equivalents which could potentially dilute basic earnings per share in the future, and which were excluded from the computation of diluted net loss per share, totaled 1,871,222 , 485,524 and 652,725 shares at December 31, 2016 , 2015 and 2014 , respectively.

Recently Issued Accounting Standards —In August 2014, the FASB issued ASU No. 2014-15, which applies to entities that have substantial doubt about their ability to continue as a going concern. This update requires management to perform interim and annual assessments of the probability about the entity's ability to remain as a going concern for a period of one year from the date the financial statements are issued. Depending on management's conclusions about the entity's ability to remain as a going concern, the entity must make certain disclosures in its financial statements. This ASU is effective for annual periods ending after December 15, 2016. The adoption of this ASU did not have a material impact on the Company's consolidated results of operations, financial condition or liquidity.

In February 2016, the FASB issued ASU No. 2016-02, which requires lessees to recognize in the balance sheets, a liability to make lease payments (the lease liability) and a right-of-use asset representing its right to use the underlying asset for the lease term (the lease asset). For leases with a term of 12 months or less, a lessee is permitted to make an accounting policy election by class of underlying asset not to recognize lease assets and lease liabilities. In transition, lessees and lessors are required to recognize and measure leases at the beginning of the earliest period presented using a modified retrospective approach. This ASU is effective for fiscal years beginning after December 15, 2018. The adoption of this ASU is not expected to have a material impact on the Company's consolidated results of operations, finance condition or liquidity.

In March 2016, the FASB issued ASU No. 2016-09, which simplifies some of the rules relating to the accounting for stock options. Among other items, this update permits entities to account for stock option forfeitures when they occur unlike the current practice that requires estimation of forfeitures at the time off issuance. This ASU is effective for annual periods beginning after December 15, 2016, and early adoption is permitted. The Company early adopted this ASU as of 2016, which has not had a material impact on the Company's consolidated results of operations, financial condition or liquidity.

Other recent accounting pronouncements issued by the FASB (including its Emerging Issues Task Force) and the Securities Exchange Commission (the SEC) did not or are not believed by management to have a material impact on the Company's present or future consolidated financial statements.

3. Property and Equipment

Property and equipment consist of the following:

	December 31, 2016	December 31, 2015
Computers	$ 70,960	$ 66,945
Research equipment	305,066	305,066
	376,026	372,011
Accumulated depreciation	(266,203)	(191,089)
	$ 109,823	$ 180,922

All of the research equipment is held by the Company's vendors. Depreciation expense was $75,114 , $36,193 and $47,656 for the years ended December 31, 2016 , 2015 and 2014 , respectively.

4. Related-Party Transactions

Cedars-Sinai Medical Center License Agreement

Dr. John Yu, the Company's founder and member of the Company's Board of Directors, is a neurosurgeon at Cedars-Sinai Medical Center (Cedars-Sinai).

On May 13, 2015, the Company entered into an Amended and Restated Exclusive License Agreement (the Amended License Agreement) with Cedars-Sinai to amend and restate the terms of the Original License Agreement. Pursuant to the Amended License Agreement, the Company acquired an exclusive, worldwide license from Cedars-Sinai to certain patent rights and technology developed in the course of research performed at Cedars-Sinai into the diagnosis of diseases and disorders in humans and the prevention and treatment of disorders in humans utilizing cellular therapies, including dendritic cell-based vaccines for brain tumors and other cancers and neurodegenerative disorders. Under the Amended License Agreement, the Company will have exclusive rights to, among other things, develop, use, manufacture, sell and grant sublicenses to the licensed technology.

The Company has agreed to pay Cedars-Sinai specified milestone payments related to the development and commercialization of ICT-107, ICT-121 and ICT-140. Among other milestone payments, the Company will be required to pay to Cedars-Sinai specified milestone payments upon commencement of the first phase 3 clinical trial (see licensing fees below) for the Company’s first product and upon first commercial sale of the Company’s first product. If both of these milestones are met, the required milestone payments will total $1.1 million . The Company will pay Cedars-Sinai single digit percentages of gross revenues from the sales of products and high-single digit to low-double digit percentages of the Company’s sublicensing income based on the licensed technology. During 2016, the Company incurred $100,000 of licensing fees to Cedars-Sinai in connection with the commencement of the phase 3 clinical trial of ICT-107. The Company did not incur any licensing fees to Cedars-Sinai during the two years ended December 31, 2015 .

The Amended License Agreement will terminate on a country-by-country basis on the expiration date of the last-to-expire licensed patent right in each such country. Either party may terminate the Amended License Agreement in the event of the other party’s material breach of its obligations under the Agreement if such breach remains uncured 60 days after such party’s receipt of written notice of such breach. Cedars-Sinai may also terminate the Amended License Agreement upon 30 days written notice to the Company that a required payment by the Company to Cedars-Sinai under the Amended License Agreement is delinquent.

The Company has also entered into various sponsored research agreements with Cedars-Sinai. For the years ended December 31, 2016, 2015 and 2014, the Company incurred research expenses from Cedars-Sinai of $0 , $55,200 , and $140,508 respectively. As of December 31, 2016 , Cedars-Sinai is not performing any research activities on behalf of the Company.

5. Commitments and Contingencies

SEC Investigation

The Company has agreed in principle with the staff of the SEC on a proposed settlement framework related to an investigation principally of a former Chief Executive Officer of the Company involving conduct between November 2011 and August 2012 regarding the publication of articles without disclosing that they were paid for by the Company or investor relations firms hired by the Company. The Company would consent to the entry of an administrative order requiring that it

cease and desist from any future violations of Sections 5, 17(a), and 17(b) of the Securities Act of 1933, as amended, and Section 10(b) of the Securities Exchange Act of 1934, as amended, subject to approval by the Commissioners of the SEC, without admitting or denying any allegations. The proposed settlement also involves the adoption of certain corporate governance amendments to the Company's policies and practices, in particular as it relates to the retention of investor relations and public relations firms. The proposed settlement is contingent upon execution of a formal offer of settlement and approval by the Commissioners of the SEC, neither of which can be assured. Based upon the settlement framework with the staff of the SEC, the Company has not accrued and does not currently expect to accrue a liability related to this matter. However, any final settlement must be approved by the Commission. If the Commission does not approve the settlement, the Company may need to enter into further discussions with the SEC to resolve the investigated matters on different terms and conditions. As a result, there can be no assurance as to the final terms of any settlement including its financial impact or any future adjustment to the financial statements.

Commitments

In an effort to expand the Company's intellectual property portfolio to use antigens to create personalized vaccines, the Company has entered into various intellectual property and research agreements. Those agreements are long-term in nature and are discussed below. In addition to the vendors described below, the Company has deposits with other vendors.

Sponsored Research Agreements

Novella Clinical LLC

On June 30, 2015, the Company entered into a Master Clinical Research Services Agreement with Novella Clinical LLC (Novella Clinical) to conduct the phase 3 registration trial of ICT-107. Novella Clinical is a full-service, global clinical research organization providing clinical trial services to small and mid-sized oncology companies. Novella Clinical will supervise the trial in the United States, Europe and Canada and will recruit approximately 542 patients with newly diagnosed glioblastoma. As of December 31, 2016 and 2015, the Company has deposits of $2,068,241 and $3,725,772 respectively, with Novella Clinical. Since the trial is not expected to be completed within the next twelve months, $1,725,772 this amount is included in deposits and reflected as a non-current asset on the December 31, 2016 balance sheet while $342,469 is reflected as a current asset. The Company may terminate this agreement upon 60 days' notice.

Licensing Agreements

The John Hopkins University Licensing Agreement

On February 23, 2012, the Company entered into an Exclusive License Agreement, effective as of February 16, 2012, with The John Hopkins University (JHU) under which it received an exclusive, world-wide license to JHU's rights in and to certain intellectual property related to mesothelin-specific cancer immunotherapies. The Company is advancing a cancer vaccine program using JHU and other intellectual property according to commercially reasonable development timeline. If successful and a product ultimately is registered, the Company will either sell the product directly or via a third-party partnership.

Pursuant to the License Agreement, the Company agreed to pay an upfront licensing fee in the low hundreds of thousands of dollars, payable half in cash and half in shares of its common stock in two tranches, within 30 days of the effective date of the License Agreement and upon issuance of the first U.S. patent covering the subject technology. Annual minimum royalties or maintenance fees increase over time and range from low tens of thousands to low hundreds of thousands of dollars. In addition, the Company has agreed to pay milestone license fees upon completion of specified milestones, totaling single digit millions of dollars if all milestones are met. Royalties based on a low single digit percentage of net sales are also due on direct sales, while third party sublicensing payments will be shared at a low double digit percentage.

The Company and JHU each have termination rights that include termination for any reason and for reasons relating to specific performance or financial conditions. Effective September 24, 2013, the Company entered into an Amendment No. 1 to the Exclusive License Agreement that updated certain milestones. Effective August 7, 2015, the Company entered into a Second Amendment to Exclusive License Agreement that amended certain sections of the License Agreement and further updated certain milestones.

California Institute of Technology

On September 9, 2014, the Company entered into an Exclusive License Agreement with the California Institute of Technology (Caltech) under which the Company acquired exclusive rights to novel technology for the development of certain Stem-to-T-cell immunotherapies for the treatment of cancers.

Pursuant to the License Agreement, the Company agreed to pay a one time license fee, a minimum annual royalty based on a low single digit percentage of net revenues and an annual maintenance fee in the low tens of thousands of dollars. In addition, the Company has agreed to make certain milestone payments upon completion of specified milestones.

Cedars-Sinai Medical Center

In connection with the Cedars-Sinai Medical Center License Agreement, the Company has certain commitments as described in Note 4.

Manufacturing

PharmaCell B.V.

In March 2015, the Company entered into an Agreement for GMP manufacturing of ICT-107 with PharmaCell B.V. (PharmaCell), pursuant to which PharmaCell will provide contract manufacturing services for the European production of ICT-107, a dendritic cell immunotherapy for the treatment of newly diagnosed glioblastoma.

The Company will pay for manufacturing services performed by PharmaCell under the Agreement pursuant to statements of work entered into from time to time. The Company may unilaterally terminate the Agreement upon 90 days' written notice to PharmaCell, or 30 days' written notice in the event of a clinical hold or other suspension or early termination of a clinical trial. PharmaCell may terminate the Agreement in certain circumstances upon 90 days' written notice to the Company. Either party may terminate the Agreement in the event of the other party's insolvency or for the other party's material breach of its obligations under the Agreement if such breach remains uncured after 30 days of receiving written notice of such breach. Absent early termination, the Agreement will continue until all services under applicable statements of work have been completed.

PCT, LLC

On June 11, 2015, the Company entered into a Services Agreement with PCT, LLC, a Caladrius Company (PCT), a subsidiary of Caladrius Biosciences, Inc.

Pursuant to the terms of the Agreement, PCT will provide current good manufacturing practice (cGMP) services for the phase 3 manufacture of ICT-107. PCT will provide, among other things, a controlled environment room on a semi-dedicated basis and qualified personnel to conduct runs as the parties mutually agree in writing and schedule. PCT's facilities are registered with the FDA for testing; packaging; processing; storage; labeling and distribution of Peripheral Blood stem and Somatic Cell therapy products, and maintain cGMP-compliant quality systems.

The Company has agreed to pay monthly fees in connection with the use of a controlled environment room on a semi-dedicated basis and monthly fees for PCT personnel performing services under the Agreement.

Services to be performed under the Agreement terminate on the earlier of (i) December 31, 2018, (ii) the date the parties mutually agree, (iii) at any time following the earlier of the one year anniversary of the date on which the Company notifies PCT that services in the semi-dedicated controlled environment room are to commence (August 1, 2016), on the last day of the month following at least 120 days' written notice from the Company to PCT, or (iv) the last day of the month following at least 60 days' written notice from the Company to PCT that the Company has received a clinical hold issued by the FDA ordering the Company to suspend clinical trials for ICT-107. Either party may terminate the Agreement in the event of the other party's insolvency or for the other party's material breach of its obligations under the Agreement if such breach remains uncured after 30 days of receiving written notice of such breach.

Summary of Employment Agreements

The Company has employment agreements with its management that provide for base salary, bonus, grants of stock options and restricted stock and severance. The aggregate base salary payable to this group is approximately $830,000 and the potential bonus is approximately $231,000 . During the years ended December 31, 2016 , 2015 and 2014 , the Company issued an aggregate of 825,000 , 1,125,000 and 317,500 stock options to its management at a weighted average exercise price of $13.20 , $23.20 and $53.60 , respectively. All of the aforementioned stock options vest over a period of 4 years . Additionally, during the years ended December 31, 2016 and 2015, the Company issued 3,375 and 6,500 restricted shares of the Company's

common stock that will vest over a period of 2 years . Certain members of management are also entitled to severance payments in the event of a change in control or termination without cause. The aggregate potential severance payments to management is approximately $420,000 . This amount does not reflect the severance and other related accruals to a former CEO of approximately $700,000 whose employment ended on December 31, 2016, and is reflected in the accrued compensation and benefits on the balance sheet. These members of management would also be entitled to COBRA for various periods of time.

Operating Lease

The Company entered into a lease for new office space effective June 15, 2013 and continuing through August 31, 2016 at an initial monthly rental of $8,063 . During 2016, the Company extended this lease through August 31, 2017, at a monthly rental of $8,554 . Rent expense was approximately $108,000 , $102,000 and $99,000 for the years ended December 31, 2016 , 2015 and 2014 , respectively.

6. Shareholders' Equity

On November 16, 2015, the Company amended its Amended and Restated Certificate of Incorporation to increase the number of authorized shares of common stock from 149,000,000 to 249,000,000 . The stockholders of the Company approved the increase in authorized shares at a special meeting of the stockholders held on November 16, 2015. On November 18, 2016, upon the stockholder approval of a one-for-forty reverse stock split and the amendment to the Company's amended and restated certificate of incorporation, the number of authorized shares of common stock was reduced to 25,000,000 .

Common Stock

In August 2016, the Company raised approximately $6.6 million (after deducting underwriting discount and offering expenses) from the initial sale of 863,750 shares of the Company's common stock, 881,250 base warrants to purchase shares of common stock at an exercise price of $7.68 per share, and 311,250 pre-funded warrants to purchase shares of common stock at an exercise price of $0.40 per share. The underwriters partially exercised their option to purchase additional shares and warrants and purchased an additional 37,500 shares of the Company's common stock at a price of $6.00 per share and 111,965 pre-funded warrants to purchase shares of common stock at an exercise price of $0.40 per warrant. The pre-funded warrants have a term of ten years , and the base warrants have a term of five years from the date of issuance. The base warrants also provide for a weighted average adjustment to the exercise price if the Company issues, or is deemed to issue, additional shares of common stock at a price per share less than the effective price of the warrants, subject to certain exceptions (see "Warrant Liability" below). Due to the potential variability of their exercise price, the base warrants do not qualify for equity treatment. The pre-funded warrants were substantially paid for at the time of the offering and have an exercise price of $0.40 per share. The pre-funded warrants qualify for equity treatment. Through December 31, 2016, 208,750 pre-funded warrants were exercised and resulted in proceeds to the Company of $83,500 .

In February 2015, the Company raised approximately $14.5 million (after commissions and offering expenses) from the sale of 666,250 shares of common stock and warrants to purchase 466,375 shares of common stock at an exercise price of $26.40 per share, to various investors in an underwritten public offering. Each unit, consisting of one share of common stock and 0.7 warrant, was priced at $24.00 . The warrants have a term of five years from the date of issuance. The warrants also provide for a weighted-average adjustment to the exercise price if the Company issues or is deemed to issue additional shares of common stock at a price per share less than the then effective price of the warrants, subject to certain exceptions (see "Warrants and Warrant Liabilities" below.)

Controlled Equity Offering

On April 18, 2013, the Company entered into a Controlled Equity Offering [SM] Sales Agreement (the Sales Agreement) with Cantor Fitzgerald & Co., as agent (Cantor), pursuant to which the Company may offer from time to time through Cantor, shares of our common stock having an aggregate offering price of up to $25.0 million (of which $17.0 million was initially registered for offer and sale). Under the Sales Agreement, Cantor may sell shares by any method permitted by law and deemed to be an "at-the-market" offering as defined in Rule 415 promulgated under the Securities Act, as amended, including sales made directly on the NYSE MKT, on any other existing trading market for our common stock or to or through a market maker. The Company may instruct Cantor not to sell shares if the sales cannot be effected at or above the price designated by us from time to time. The Company is not obligated to make any sales of the shares under the Sales Agreement. The offering of shares pursuant to the Sales Agreement will terminate upon the earlier of (a) the sale of all of the shares subject to the Sales Agreement or (b) the termination of the Sales Agreement by Cantor or the Company, as permitted therein. Cantor will receive a commission rate of 3% of the aggregate gross proceeds from each sale of shares and the Company has agreed to provide Cantor

with customary indemnification and contribution rights. The Company will also reimburse Cantor for certain specified expenses in connection with entering into the Sales Agreement. On April 22, 2013, NYSE MKT approved the listing of 264,831 shares of our common stock in connection with the Sales Agreement. As of September 21, 2015, the registration statement previously filed with the SEC to facilitate the sale of registered shares of the Company's common stock under the Controlled Equity Offering expired. The Company filed a new registration statement with the SEC that was declared effective on January 19, 2016 to facilitate the sale of additional shares under the Controlled Equity Offering. Under the terms of the prospectus, the Company may sell up to $15,081,494 of the Company's common stock through the aforementioned Controlled Equity Offering. Pursuant to Instruction I.B.6 to Form S-3 (the Baby Shelf Rules), the Company may not sell more than the equivalent of one-third of its public float during any 12 consecutive months so long as the Company's public float is less than $75.0 million . During the year ended December 31, 2016 , the Company sold 77,141 shares of our common stock under the Sales Agreement that resulted in net proceeds to the Company of approximately $691,187 of which $48,977 represented the recovery of deferred offering costs that had been incurred as of December 31, 2015. As of December 31, 2016, the Company had approximately $14.3 million available to be sold under the Sales Agreement.

Stock Options

In February 2005, the Company adopted an Equity Incentive Plan (Plan). Pursuant to the Plan, a committee appointed by the Board of Directors may grant, at its discretion, qualified or nonqualified stock options, stock appreciation rights and may grant or sell restricted stock to key individuals, including employees, nonemployee directors, consultants and advisors. Option prices for qualified incentive stock options (which may only be granted to employees) issued under the plan 100% of the fair market value of the common stock on the date the option is granted (unless the option is granted to a person who, at the time of grant, owns 10% of the total combined voting power of all classes of stock of the Company; in which case the option price may not be 110% of the fair market value of the common stock on the date the option is granted). Option prices for nonqualified stock options issued under the Plan are at the discretion of the committee and may be equal to, greater or less than fair market value of the common stock on the date the option is granted. The options vest over periods determined by the Board of Directors and are exercisable no later than ten years from date of grant (unless they are qualified incentive stock options granted to a person owning more than 10% of the total combined voting power of all classes of stock of the Company, in which case the options are exercisable no later than five years from date of grant). Initially, the Company reserved 150,000 shares of common stock for issuance under the Plan which was subsequently increased to 300,000 shares. Options to purchase 110,846 common shares have been granted under the Plan and are outstanding as of December 31, 2016 . Additionally, 6,500 shares of restricted common stock have been granted to management and 1,000 shares of restricted common stock have been granted to members of the Company's board of directors. The plan expired in January 2016.

On March 11, 2016, the Company's Board of Directors adopted the 2016 Equity Incentive Plan (the 2016 Plan) and reserved 250,000 shares of common stock for issuance under the 2016 Plan. The 2016 Plan was approved by the Company's stockholders at its 2016 Annual Meeting of Stockholders. During the year ended December 31, 2016, the Company's Board of Directors granted 48,444 stock options and 7,862 restricted stock units to certain directors, officers and employees. The options have an exercise price equal to the closing stock price on the date of grant. The stock options vest over a period of four years and the restricted stock units vest over a period of two years .

The following table summarizes stock option activity for the Company during the three years ended December 31, 2016 :

	Options	Weighted Average Exercise Price	Weighted Average Contractual Term	Aggregate Intrinsic Value
Outstanding December 31, 2013	261,667	$ 54.80		
Granted	13,678	$ 51.20		
Exercised	(15,601)	$ 94.40		
Forfeited or expired	(26,875)	$ 43.20		
Outstanding December 31, 2014	232,869	$ 53.20		
Granted	46,075	$ 21.60		
Exercised	(1,250)	$ 10.80		
Forfeited or expired	(9,697)	$ 70.40		
Outstanding December 31, 2015	267,997	$ 47.20		
Granted	48,444	$ 11.61		
Exercised	—	$ —		
Forfeited or expired	(153,776)	$ 40.63		
Outstanding December 31, 2016	162,665	$ 43.11	6.30	$ —
Vested or expected to vest at December 31, 2015	102,020			

As of December 31, 2016 , the total unrecognized compensation cost related to unvested stock options amounted to $727,856 , which will be amortized over the weighted-average remaining requisite service period of approximately 11 months .

Warrants Accounted for As Equity

In connection with the January 2012 underwritten public offering, the Company issued to the investors warrants to purchase 118,618 shares of the Company's common stock at $56.40 per share. The warrants had a term of five years from the date of issuance. These warrants qualify for equity treatment since they do not have any provisions that would require the Company to redeem them for cash or that would result in an adjustment to the number of warrants. As of December 31, 2016 , warrants to purchase 35,454 shares of the Company's common stock were outstanding. In January 2017 the remaining warrants expired (See Subsequent Events Note 10).

In connection with the October 2012 underwritten public offering, the Company issued to the investors warrants to purchase 112,500 shares of the Company's common stock at $106.00 per share. The warrants have a term of five years from the date of issuance. These warrants qualify for equity treatment since they do not have any provisions that would require the Company to redeem them for cash or that would result in an adjustment to the number of warrants. As of December 31, 2016 , warrants to purchase 111,119 shares of the Company's common stock remain outstanding relating to this public offering.

In connection with the August 2016 underwritten public offering, the Company issued 311,250 pre-funded warrants to purchase shares of common stock to certain investors. These pre-funded warrants were substantially paid for at the time of issuance, have a term of ten years from the date of issuance and an exercise price of $0.40 per share. During 2016, pre-funded warrants to purchase 208,750 shares of common stock were exercised and pre-funded warrants to purchase 102,500 shares of common stock remain outstanding as of December 31, 2016. These pre-funded warrants qualify for equity treatment since they do not have any provisions that would require the Company to redeem them for cash or that would result in an adjustment to either the exercise price or the number of shares that would be issuable upon exercise.

Warrants Accounted for as Liabilities

The Company's warrant liability is adjusted to fair value each reporting period and is influenced by several factors, including but not limited to, the price of the Company's common stock as of the balance sheet date. On December 31, 2016 , the price per share of Company's common stock was $2.05 per share compared to $14.40 per share at December 31, 2015 and $29.20 per share at December 31, 2014 .

In connection with the sale of Preferred stock in May 2010, the Company issued warrants to purchase 33,750 shares of the Company's common stock at an exercise price of $100.00 per share. Of the total proceeds from the May 2010 preferred stock sale, $5,710,500 was allocated to the freestanding warrants associated with the units based upon the fair value of these

warrants determined under the Black Scholes option pricing model. The warrants contain a provision whereby the warrant may be settled for cash in connection with a change of control with a private company. Due to their potential cash settlement, these warrants do not qualify for equity treatment, and therefore are recognized as a liability. The warrant liability is adjusted to fair value each reporting period and any change in value is recognized in the statement of operations. Prior to 2011 , the Company concluded that the Black-Scholes method of valuing the price adjustment feature does not materially differ from the valuation of such warrants using the Monte Carlo or binomial lattice simulation models, and therefore, the use of the Black-Scholes valuation model was considered a reasonable method to value the warrants. The assumptions used in the Black Scholes model for determining the initial fair value of the warrants were as follows: (i) dividend yield of 0% ; (ii) expected volatility of 102% , (iii) risk-free interest rate of 2.50% , and (iv) contractual life of five years . Effective January 1, 2011, the Company determined that it was more appropriate to value the warrants using a binomial lattice simulation model. For the years ended December 31, 2014 and 2015, the Company recorded a credit to other income of $260,781 and $7,746 respectively. During 2015, the remaining warrants expired.

In February 2011, the Company completed a common stock private placement and issued warrants to purchase 70,467 shares of the Company’s common stock at $90.00 per share. The warrants contained a provision whereby the warrant exercise price would be decreased in the event that certain future common stock issuances are made at a price less than $62.00 . Due to the potential variability of their exercise price, these warrants do not qualify for equity treatment, and therefore are recognized as a liability. As a result of the January 2012, October 2012, and February 2015 financings and shares sold through the Company's Controlled Equity Offering, the exercise price of the warrants was adjusted to $57.60 and the number of warrants was proportionately increased to 91,670 net of exercises. The warrant liability is adjusted to fair value each reporting period, and any change in value is recognized in the statement of operations. The Company initially valued these warrants using a binomial lattice simulation model assuming (i) dividend yield of 0.0% ; (ii) expected volatility of 146.0% ; (iii) risk free rate of 1.96% and (iv) expected term of five years . Based upon those calculations, the Company allocated $2,476,790 of the private placement proceeds to the freestanding warrants. The lattice simulation model used by the Company at December 31, 2015 assumed (i) dividend yield of 0.0% ; (ii) expected volatility of 148.0% ; (iii) risk free rate of 0.31% and (iv) expected term of 1.14 years . For the years ended December 31, 2014 and 2015, the Company recorded a credit to other expense of $268,993 and $678,912 respectively. The remaining warrants expired on February 24, 2016. The Company did not record a credit or charge to change in fair value of warrant liability in other income during 2016.

In connection with the February 2015 underwritten public offering, the Company issued to the investors warrants to purchase 466,369 shares of the Company’s common stock at $26.40 per share. The warrants contain a provision whereby the warrant exercise price would be decreased in the event that certain future common stock issuances are made at a price less than $26.40 . Due to the potential variability of their exercise price, these warrants do not qualify for equity treatment, and therefore are recognized as a liability. During 2016, the exercise price of these warrants was adjusted to $20.00 to reflect the shares sold under the Company's controlled equity offering and the August 2016 public offering. The Company initially valued these warrants using a binomial lattice simulation model assuming (i) dividend yield of 0% ; (ii) expected volatility of 97% ; (iii) risk free rate of 1.53% and (iv) expected term of five years . Based upon these calculations, the Company allocated $4,197,375 of the underwritten public offering to the freestanding warrants. As of December 31, 2015, the Company revalued the warrants using the binomial lattice simulation model assuming (i) dividend yield of 0% ; (ii) expected volatility of 91% ; (iii) risk free rate of 1.56% and (iv) expected term of 4.11 years . For the year ended December 31, 2015, the Company recorded a credit to other income of $ 2,238,600 . As of December 31, 2016, the Company revalued the warrants using the binomial lattice simulation model assuming (i) dividend yield of 0% ; (ii) expected volatility of 89% ; (iii) risk free rate of 1.5% and expected term of 3.11 years . For the year ended December 31, 2016, the Company recorded a credit to other income of $2,024,611 . As of December 31, 2016, the carrying value of the warrant liability is $76,952 .

In connection with the August 2016 underwritten public offering, the Company issued to the investors 993,115 warrants to purchase shares of the common stock with an initial exercise price of $7.68 per share. The warrants contain a provision whereby the warrant exercise price would be proportionately decreased in the event that future common stock issuances are made at a price less than $7.68 per share. Due to the potential variability of their exercise price, these warrants do not qualify for equity treatment, and therefore are recognized as a liability. These warrants are traded on the NYSE MKT (symbol IMUC.WS). The Company initially valued these warrants using the closing price on August 12, 2016 at $2.30 , which was the first day the warrants were traded on the NYSE MKT. Accordingly, the Company allocated 2,284,395 of the total proceeds from the August 2016 offering to the base warrants. As of December 31, 2016, the warrants were valued using the last trading price of the year at $0.50 , accordingly, the warrant liability was adjusted to $496,608 and the Company recorded a credit to other income of $1,787,787 .

The below table summarizes the warrant liability activity for the years ended December 31, 2016 , 2015 and 2014 . The gain included in net loss is reflective of several changes in the assumptions used in the computation of fair value, including the decrease in the Company's stock price, during the years ended December 31, 2016 , 2015 and 2014 .

	2016	2015	2014
Beginning Balance, January 1	$ 1,958,775	$ 597,719	$ 1,064,810
Issuance of warrants and effect of repricing	2,427,183	4,286,314	62,683
Exercise of warrants	—	—	—
(Gain) or loss included in earnings	(3,812,398)	(2,925,258)	(529,774)
Transfers in and/or out of Level 3	—	—	—
Ending Balance December 31,	$ 573,560	$ 1,958,775	$ 597,719

7. California Institute of Regenerative Medicine Award

On September 18, 2015 , the Company received an award in the amount of $19,919,449 from the California Institute of Regenerative Medicine (CIRM) to partially fund the Company’s phase 3 trial of ICT-107. The award provided for a $4,000,000 project initial payment, which was received during the fourth quarter of 2015, and up to $15,919,449 in future milestone payments that are primarily dependent on patient enrollment in the ICT-107 phase 3 trial. In August 2016, the Company and CIRM modified the award such that the Company received an additional $1.5 million initial payment. The total amount of the award and other award conditions remain unchanged. Under the terms of the CIRM award, the Company is obligated to share future ICT-107 related revenue with CIRM. The percentage of revenue sharing is dependent on the amount of the award received by the Company and whether the revenue is from product sales or license fees. The maximum revenue sharing amount the Company may be required to pay to CIRM is equal to nine (9) times the total amount awarded and received by the Company. The Company has the option to decline any and all amounts awarded by CIRM. As an alternative to revenue sharing, the Company has the option to convert the award to a loan, which such option the Company must exercise on or before ten (10) business days after the FDA notifies the Company that it has accepted the Company’s application for marketing authorization. In the event the Company exercises its right to convert the award to a loan, it will be obligated to repay the loan within ten (10) business days of making such election, including interest at the rate of the three-month LIBOR rate (0.92% as of December 31, 2016) plus 25% per annum. Since the Company may be required to repay some or all of the amounts awarded by CIRM, the Company plans to account for this award as a liability rather than revenue. If the Company was to lose this funding, it may be required to delay, postpone, or cancel its clinical trials or otherwise reduce or curtail its operations unless it is able to obtain adequate financing for its clinical trials from additional sources. As of December 31, 2016 , the Company has accrued interest of $1,445,741 , which is included in the CIRM liability on the Consolidated Balance Sheets.

8. 401(k) Profit Sharing Plan

The Company has adopted a Profit Sharing Plan that qualifies under Section 401(k) of the Internal Revenue Code. Contributions to the plan are at the Company’s discretion. The Company did not make any matching contributions during the years ended December 31, 2016 and 2015 .

9. Income Taxes

Deferred taxes represent the net tax effects of the temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes. Temporary differences result primarily from the recording of tax benefits of net operating loss carry forwards and stock-based compensation.

As of December 31, 2016 , the Company has an insufficient history to support the likelihood of ultimate realization of the benefit associated with the deferred tax asset. Accordingly, a valuation allowance has been established for the full amount of the net deferred tax asset.

The Company’s effective income tax rate differs from the amount computed by applying the federal statutory income tax rate to loss before income taxes as follows:

	2016	2015	2014
Income tax benefit at the federal statutory rate	(34)%	(34)%	(34)%
State income tax benefit, net of federal tax benefit	(6)%	(6)%	(6)%
Change in fair value of warrant liability	7 %	8 %	2 %
Change in valuation allowance for deferred tax assets	35 %	32 %	38 %
Other	(2)%	— %	— %
Total	— %	— %	— %

Deferred taxes consisted of the following:

	December 31, 2016	December 31, 2015	December 31, 2014
Net operating loss carryforwards	$ 27,267,545	$ 20,091,036	$ 16,302,000
Stock-based compensation	3,090,903	2,599,308	2,191,000
Less valuation allowance	(30,358,448)	(22,690,344)	(18,493,000)
Net deferred tax asset	$ —	$ —	$ —

The valuation allowance increased by $7,668,104 , $4,197,344 and $712,739 during the years ended December 31, 2016 , 2015 and 2014 , respectively.

As of December 31, 2016 , the Company had federal and California income tax net operating loss carryforwards of approximately $68.2 million . These net operating losses will begin to expire in taxable years 2027 through 2036 and 2017 through 2036 , respectively, unless previously utilized.

Section 382 of the Internal Revenue Code can limit the amount of net operating losses which may be utilized if certain changes to a company's ownership occur. As of December 31, 2016, the Company has not experienced a change in ownership as defined by Section 382 of the Internal Revenue Code, based on a revised analysis completed by management. Management estimated that the Company has not incurred any limitations on its ability to utilize its net operating losses under Section 382 of the Internal Revenue Code as a result of its February 2015 and August 2016 financings.

During the fourth quarter of 2014 , the Company licensed the non-U.S. rights to a significant portion of its intellectual property to its Bermuda-based subsidiary for approximately $11 million . The fair value of the intellectual property rights was determined by an independent third party. The proceeds from this sale represent a gain for U.S. tax purposes and were offset by current year losses and net operating loss carryforwards. However, the Internal Revenue Service, or the IRS, or the California Franchise Tax Board, or the CFTB, could challenge the valuation of the intellectual property rights and assess a greater valuation, which would require the Company to utilize a portion, or all, of its available net operating losses. If an IRS or a CFTB valuation exceeds the available net operating losses, the Company would incur additional income taxes. The Company's ability to use its net operating losses is subject to the limitations of IRS Section 382, as well as expiration of federal and state net operating loss carryforwards.

10. Subsequent Events

Warrant Expiration

On January 12, 2017, warrants to purchase 35,464 shares of the Company's common stock issued in connection with the January 2012 underwritten public offering expired unexercised. See additional discussion in Note 6.

Exhibit Index

Exhibit	Description	Incorporation by Reference				Filed Herewith
		Form	SEC File No.	Exhibit	Filing Date	
2.1	Agreement and Plan of Reorganization dated as of May 5, 2005, as amended, among Patco Industries Subsidiary, Inc., William C. Patridge, and Spectral Molecular Imaging, Inc., as amended on June 30, 2005, September 26, 2005 and January 20, 2006	8-K	033-17624-NY	2.1	1/26/2006	
3.1	Amended and Restated Certificate of Incorporation	8-K	001-35560	3.1	9/24/2013	
3.2	Certificate of Amendment to Amended and Restated Certificate of Incorporation	8-K	001-35560	3.1	11/19/2015	
3.3	Certificate of Amendment to Amended and Restated Certificate of Incorporation	8-K	001-35560	3.1	11/18/2016	
3.4	Amended and Restated Bylaws	S-8	333-171652	3.1	1/11/2011	
3.5	Amendment to the Amended and Restated Bylaws	8-K	001-35560	3.1	5/25/2012	
4.1	Form of Common Stock Certificate of the Registrant	SB-2	333-140598	4.1	2/12/2007	
4.2	Form of Warrant to Purchase Common Stock, originally issued in February 2011	8-K	033-17264-NY	4.1	2/25/2011	
4.3	Form of Warrant to Purchase Common Stock, originally issued in January 2012	8-K	033-17264-NY	4.1	1/10/2012	
4.4	Form of Warrant to Purchase Common Stock, originally issued in October 2012	8-K	001-35560	10.1	10/19/2012	
4.5	Form of Warrant to Purchase Common Stock, originally issued in February 2015	10-Q	001-35560	4.1	5/11/2015	
4.6	Form of Base Warrant to Purchase Common Stock, originally issued in August 2016	S-1/A	333-211763	4.8	8/4/2016	
4.7	Form of Pre-Funded Warrant to Purchase Common Stock, originally issued in August 2016	S-1/A	333-211763	4.9	8/4/2016	
10.1	Amended and Restated 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	11/14/2011	
10.2	Form of Non-Qualified Stock Option Agreement for the 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	S-8	333-147278	4.5	11/9/2007	
10.3	Form of Incentive Stock Option Agreement for the 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	S-8	333-147278	4.6	11/9/2007	
10.4†	Exclusive License Agreement dated as of November 17, 2006 between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.1	11/22/2006	
10.5†	First Amendment to Exclusive License Agreement dated as of June 16, 2008, between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.2	08/14/2008	
10.6	Stock Purchase Agreement dated as of November 17, 2006 between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.3	11/22/2006	
10.7	Registration Rights Agreement dated as of November 17, 2006 between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.4	11/22/2006	
10.8	Securities Purchase Agreement dated as of November 17, 2006 between Dr. John Yu and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.5	11/22/2006	

Exhibit	Description	Incorporation by Reference				Filed Herewith
10.9**	Agreement dated as of November 17, 2006 between Dr. John Yu and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.2	11/22/2006	
10.10**	Nonqualified Stock Option Agreement dated as of November 17, 2006 between Dr. John Yu and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.6	11/22/2006	
10.11	Registration Rights Agreement dated as of November 17, 2006 between Dr. John Yu and ImmunoCellular Therapeutics, Ltd.	8-K	033-17264-NY	10.7	11/22/2006	
10.12	Agreement dated as of February 14, 2008 between Molecular Discoveries, LLC and ImmunoCellular Therapeutics, Ltd.	10KSB	033-17264-NY	10.20	03/25/2008	
10.13	Registration Rights Agreement dated as of April 14, 2008, between Molecular Discoveries, LLC and ImmunoCellular Therapeutics, Ltd.	S-1	333-150277	10.24	04/16/2008	
10.14	Agreement dated as of August 1, 2008 between Dr. Cohava Gelber and ImmunoCellular Therapeutics, Ltd.	10-K	001-35560	10.1	03/30/2009	
10.15	Second Amendment dated August 1, 2009 to Exclusive License Agreement dated as of November 17, 2006 between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.1	11/13/2009	
10.16	Preferred Stock Purchase Agreement dated as of December 3, 2009 between ImmunoCellular Therapeutics, Ltd. and Socius Capital Group, LLC d/b/a Socius Life Sciences Capital Group, LLC.	8-K	033-17264-NY	10.1	12/03/2009	
10.17**	Agreement dated March 1, 2010 between Dr. John Yu and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.36	03/31/2010	
10.18	Securities Purchase Agreement dated March 11, 2010 between participants in the March 2010 private placement and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.6	05/181/2010	
10.19	Form of Registration Rights Agreement dated as of March 29, 2010 between participants in the March 2010 private placement and ImmunoCellular Therapeutics, Ltd.	S-1/A	333-150277	10.27	05/12/2010	
10.20	Modification Agreement dated May 2, 2010 among Socius CG II, Ltd., Socius Life Sciences Capital Group, LLC and ImmunoCellular Therapeutics, Ltd.	S-1/A	333-150277	10.33	05/12/2010	
10.21	Third Amendment dated March 26, 2010 to Exclusive License Agreement dated as of November 17, 2006 between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	S-1/A	333-150277	10.35	05/12/2010	
10.22	Securities Purchase Agreement dated May 12, 2010 between participants in the May 2010 private placement and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.11	05/18/2010	
10.23	Form of Registration Rights Agreement between participants in the May 2010 private placement and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.12	05/18/2010	
10.24	Purchase Agreement, dated as of February 22, 2011, by and between the ImmunoCellular Therapeutics, Ltd. and each investor named therein.	10-Q	001-35560	10.1	5/11/2015	

Exhibit	Description	Incorporation by Reference				Filed Herewith
10.25	Registration Rights Agreement, dated as of February 22, 2011, by and among ImmunoCellular Therapeutics, Ltd. and the investors named therein.	8-K	033-17264-NY	10.2	02/25/2011	
10.26†	Exclusive Sublicense Agreement dated May 28, 2010 between Targepeutics, Inc. and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.48	03/31/2011	
10.27†	Sponsored Research and Vaccine Production Agreement dated January 1, 2011 between The Trustees of the University of Pennsylvania and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.49	03/31/2011	
10.28	Placement agent agreement dated March 30, 2010 between Gilford Securities Incorporated and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.50	03/31/2011	
10.29	Placement agent agreement dated April 7, 2010 between Scarsdale Equities LLC and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.51	03/31/2011	
10.30	Consulting Agreement dated October 1, 2010 between JFS Investments and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.52	03/31/2011	
10.31	Advisory services agreement dated October 1, 2010 between Garden State Securities Inc. and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.53	03/31/2011	
10.32	Co-placement Agents Agreement dated January 31, 2011 among Summer Street Research Partners, Dawson James Securities, Inc. and ImmunoCellular Therapeutics, Ltd.	10-K	033-17264-NY	10.54	03/31/2011	
10.33**	Agreement dated as of March 13, 2011 between Dr. John Yu and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.4	08/18/2011	
10.34†	Patent License Agreement, effective February 10, 2012, among The Trustees of the University of Pennsylvania and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.50	03/21/2012	
10.35†	Exclusive License Agreement, effective February 16, 2012, between the Johns Hopkins University and ImmunoCellular Therapeutics, Ltd.	10-Q	033-17264-NY	10.51	03/21/2012	
10.36	Office Lease dated July 1, 2012 between Regent Business Centers and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	08/14/2012	
10.37**	Employment Agreement dated December 3, 2012 between Andrew Gengos and ImmunoCellular Therapeutics, Ltd.	10-K	001-35560	10.54	03/11/2013	
10.38**	Form of Stock Option Grant Notice for the 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	10-K	001-35560	10.55	03/11/2013	
10.39	Controlled Equity Offering ^{SM} Sales Agreement dated April 18, 2013 between ImmunoCellular Therapeutics, Ltd. and Cantor Fitzgerald & Co.	8-K	001-35560	10.1	04/18/2013	
10.40**	Form of Indemnity Agreement between ImmunoCellular Therapeutics, Ltd. and each of its directors and executive officers.	10-Q	001-35560	10.1	05/10/2013	
10.41	Office Lease dated May 13, 2013 between Calabasas/Sorrento Square, LLC and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	08/08/2013	
10.42	Master Services Agreement dated September 1, 2010 between Averion International Corp. and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.2	08/08/2013	

Exhibit	Description	Incorporation by Reference				Filed Herewith
10.43**	Employment Agreement dated August 19, 2013 between Anthony Gringeri and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	11/07/2013	
10.44†	Amendment No. 1 to the Exclusive License Agreement between the Johns Hopkins University and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.2	11/07/2013	
10.45**	Amended and Restated 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.3	11/07/2013	
10.46**	Amendment No. 1 to Amended and Restated 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.4	11/07/2013	
10.47**	Form of Stock Option Grant Notice for the 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.5	11/07/2013	
10.48	Master Services Agreement dated February 19, 2014 between Aptiv Solutions, Inc. and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10	03/14/2014	
10.49**	Employment Agreement dated January 30, 2015 between Steven J. Swanson and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	5/11/2015	
10.50†	Agreement for GMP Manufacturing of ICT-107 dated March 13, 2015 between PharmaCell B.V. and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.2	5/11/2015	
10.51†	Amended & Restated Exclusive License Agreement dated May 13, 2015 between Cedars-Sinai Medical Center and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.2	8/7/2015	
10.52**	Form of Restricted Stock Unit Agreement for the 2006 Equity Incentive Plan of ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	8/7/2015	
10.53†	Services Agreement dated June 11, 20015 between ImmunoCellular Therapeutics, Ltd and PCT, LLC, a Caladrius Company	10-Q	001-35560	10.3	8/7/2015	
10.54†	Second Amendment to Exclusive License Agreement dated August 7, 2015 between ImmunoCellular Therapeutics, Ltd. and Johns Hopkins University	10-Q	001-35560	10.1	11/9/2015	
10.55**	Employment Agreement dated September 15, 2015 between David Fractor and ImmunoCellular Therapeutics. Ltd., as amended on September 14, 2016	10-Q	001-35560	10.2	11/9/2015	
10.56**	Independent Contractor Services Agreement effective as of October 1, 2015 between John Yu and ImmunoCellular Therapeutics, Ltd.	10-K	001-35560	10.57	5/3/2016	
10.57**	Amended and Restated Independent Contractor Services Agreement dated February 1, 2016 between John Yu and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	5/3/2016	
10.58	2016 Equity Incentive Plan	S-1/A	333-211763	10.59	7/11/2016	
10.59	Forms of Stock Option Agreement, Notice of Grant of Stock Option, Restricted Stock Unit Grant Notice and Restricted Stock Award Grant Notice under the 2016 Equity Incentive Plan	S-1/A	333-211763	10.60	7/11/2016	
10.60	Non-Employee Director Compensation Plan	S-1/A	333-211763	10.61	7/11/2016	
10.61	First Amendment to Lease Extending Term executed on May 18, 2016 between Calabasas/Sorrento Square, LLC and ImmunoCellular Therapeutics, Ltd.	10-Q	001-35560	10.1	8/22/2016	

Exhibit	Description	Incorporation by Reference				Filed Herewith
10.62**	Separation Agreement dated December 13, 2016 between Andrew Gengos and ImmunoCellular Therapeutics, Ltd.					X
23.1	Consent of Marcum LLP					X
24.1	Power of Attorney (see signature page hereto)					X
31.1	Certification of the registrant's Principal Executive Officer under Exchange Act Rule 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
31.2	Certification of the registrant's Principal Financial Officer under Exchange Act Rule 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
32.1	Certification of the registrant's Principal Executive Officer under 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X
32.2	Certification of the registrant's Principal Financial Officer under 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					X
101.INS	XBRL Instance Document					X
101.SCH	XBRL Taxonomy Extension Schema Document					X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document					X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document					X
101.LAB	XBRL Taxonomy Extension Label Linkbase Document					X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document					X

** Indicates a management contract or compensatory plan or arrangement

† Certain portions of the exhibit have been omitted based upon a request for confidential treatment filed by us with the Securities and Exchange Commission. The omitted portions of the exhibit have been separately filed by us with the Securities and Exchange Commission.

Exhibit 10.63

IMMUNOCELLULAR THERAPEUTICS,LTD.
23622 Calabasas Road, Suite 300
Calabasas, CA 91302

December 13, 2016

Andrew Gengos
ImmunoCellular Therapeutics, Ltd.
23622 Calabasas Road
Suite 300
Calabasas, CA 91302

Dear Andrew:

This letter sets forth the substance of the separation agreement (the "Agreement") between you and ImmunoCellular Therapeutics, Ltd. (the "Company").

1. Separation . Your employment separation date will be December 31, 2016 (the "Separation Date"). Between now and the Separation Date, you will perform duties as a regular employee reporting to the CEO, will receive your regular compensation and benefits, and will remain eligible for your 2016 bonus (paid if and when determined by the Board for 2016 performance of the Company and its officers), all as governed by the terms of your Executive Employment Agreement with the Company dated December 3, 2012 (the "Employment Agreement"). Notwithstanding Section 1.4 of the Employment Agreement, following the Separation Date, you will remain a member of the Company's Board of Directors.

2. Accrued Salary and Vacation . On the Separation Date, the Company will pay you all accrued salary, and all accrued and unused vacation earned through the Separation Date, subject to standard payroll deductions and withholdings. You are entitled to these payments by law.

3. Severance Benefits. Your employment separation is without "Cause" as defined in the Employment Agreement. As such, the Company will provide you with the following severance benefits, provided that you sign this release and allow it to become effective:

a. Cash Payment. The Company shall pay you, as severance, the equivalent of twelve (12) months of your current base salary, subject to standard payroll deductions and withholdings (the "Severance"). The Severance will be paid in a lump sum on the sixtieth (60 th) day following your Separation Date.

b. COBRA Premiums. Provided that you timely elect continued coverage under COBRA, the Company shall pay the COBRA premiums to continue your coverage (including coverage for eligible dependents, if applicable) ("COBRA Premiums") through the period (the "COBRA Premium Period") starting on the Separation Date and ending on the earliest to occur of:

(i) twelve (12) months following the Separation Date; (ii) the date you become eligible for group health insurance coverage through a new employer; or (iii) the date you cease to be eligible for COBRA continuation coverage for any reason. In the event you become covered under another employer's group health plan or otherwise cease to be eligible for COBRA during the COBRA Premium Period, you must immediately notify the Company of such event. Notwithstanding the foregoing, if the Company determines, in its sole discretion, that it cannot pay the COBRA Premiums without a substantial risk of violating applicable law, then the Company instead shall pay you, on the first day of each calendar month, a fully taxable cash payment equal to the applicable COBRA premiums for that month, subject to applicable tax withholdings, which you may (but are not obligated to) use toward the cost of COBRA premiums.

4. Stock Options. Under the terms of your stock option agreement and the applicable plan documents, vesting of your unvested stock options and restricted stock will accelerate as of the Separation Date. Your right to exercise any vested shares, and all other rights and obligations with respect to your stock options(s), will be as set forth in your stock option agreement, grant notice and applicable plan documents.

5. Other Compensation or Benefits. You acknowledge that, except as expressly provided in this Agreement, you have not earned and will not receive from the Company any additional compensation (including base salary, bonus, or incentive compensation), severance, or benefits before or after the Separation Date, with the exception of any vested right you may have under the express terms of a written ERISA-qualified benefit plan (e.g., 401(k) account) or any vested options.

6. Expense Reimbursements. You agree that, within ten (10) days of the Separation Date, you will submit your final documented expense reimbursement statement reflecting all business expenses you incurred through the Separation Date, if any, for which you seek reimbursement. The Company will reimburse you for these expenses pursuant to its regular business practice.

7. Return of Company Property . By the close of business on the Separation Date, you agree to return to the Company all Company documents (and all copies thereof) and other Company property which you have in your possession or control, including, but not limited to, Company files, notes, drawings, records, plans, forecasts, reports, studies, analyses, proposals, agreements, financial information, research and development information, sales and marketing information, customer lists, prospect information, pipeline reports, sales reports, operational and personnel information, specifications, code, software, databases, computer-recorded information, tangible property and equipment (including, but not limited to, computers, facsimile machines, mobile telephones, servers), credit cards, entry cards, identification badges and keys; and any materials of any kind which contain or embody any proprietary or confidential information of the Company (and all reproductions thereof in whole or in part). You agree that you will make a diligent search to locate any such documents, property and information by the close of business on the Separation Date. If you have used any personally owned computer, server, or e-mail system to receive, store, review, prepare or transmit any Company confidential or proprietary data, materials or information, within fifteen (15) business days after the Separation Date, you shall provide the

Company with a computer-useable copy of such information and then permanently delete and expunge such Company confidential or proprietary information from those systems; and you agree to provide the Company access to your system as requested to verify that the necessary copying and/or deletion is done. Your timely compliance with this paragraph is a condition precedent to your receipt of the severance benefits provided under this Agreement.

8. Proprietary Information Obligations . You acknowledge and reaffirm your continuing obligations under your Proprietary Information and Inventions Agreement, a copy of which is attached hereto as Exhibit A.

9. Nondisparagement. You agree not to disparage the Company, its officers, directors, employees, shareholders, and agents, in any manner likely to be harmful to its or their business, business reputation, or personal reputation, and the Company's officers and directors agree not to disparage you in any manner likely to be harmful to your personal or professional reputation; provided that both you and the Company will respond accurately and fully to any question, inquiry or request for information when required by legal process. You will have the opportunity to review and approve the language of any press release pertaining to your separation from the Company, and no press release will be issued by the Company without your and the Company's mutual agreement as to the language pertaining to your separation from the Company.

10. No Admissions. You understand and agree that the promises and payments in consideration of this Agreement shall not be construed to be an admission of any liability or obligation by the Company to you or to any other person, and that the Company makes no such admission.

11. Release of Claims . In exchange for the consideration under this Agreement to which you would not otherwise be entitled, you hereby generally and completely release the Company and its directors, officers, employees, shareholders, partners, agents, attorneys, predecessors, successors, parent and subsidiary entities, insurers, affiliates, and assigns from any and all claims, liabilities and obligations, both known and unknown, that arise out of or are in any way related to events, acts, conduct, or omissions occurring at any time prior to and including the date you sign this Agreement. This general release includes, but is not limited to: (a) all claims arising out of or in any way related to your employment with the Company or the termination of that employment; (b) all claims related to your compensation or benefits from the Company, including salary, bonuses, commissions, vacation pay, expense reimbursements, severance pay, fringe benefits, stock, stock options, or any other ownership interests in the Company; (c) all claims for breach of contract, wrongful termination, and breach of the implied covenant of good faith and fair dealing; (d) all tort claims, including claims for fraud, defamation, emotional distress, and discharge in violation of public policy; and (e) all federal, state, and local statutory claims, including claims for discrimination, harassment, retaliation, attorneys' fees, or other claims arising under the federal Civil Rights Act of 1964 (as amended), the federal Americans with Disabilities Act of 1990, the California Labor Code (as amended), the California Family Rights Act, the Age Discrimination in Employment Act ("ADEA") and the California Fair Employment and Housing Act (as amended). Notwithstanding the foregoing, you are not releasing the Company from any claims that cannot be waived under applicable law, nor are you releasing the Company from any obligation to indemnify

you pursuant to the Articles and Bylaws of the Company, any valid fully executed indemnification agreement with the Company, applicable law, or applicable directors and officers liability insurance.

12. ADEA Release. You acknowledge that you are knowingly and voluntarily waiving and releasing any rights you have under the ADEA, and that the consideration given for the waiver and releases you have given in this Agreement is in addition to anything of value to which you were already entitled. You further acknowledge that you have been advised, as required by the ADEA, that: (a) your waiver and release does not apply to any rights or claims that arise after the date you sign this Agreement; (b) you should consult with an attorney prior to signing this Agreement (although you may choose voluntarily not to do so); (c) you have twenty-one (21) days to consider this Agreement (although you may choose voluntarily to sign it sooner); (d) you have seven (7) days following the date you sign this Agreement to revoke this Agreement (in a written revocation sent to me); and (e) this Agreement will not be effective until the date upon which the revocation period has expired, which will be the eighth day after you sign this Agreement provided that you do not revoke it (the "Effective Date").

13. Protected Rights. You understand that nothing in this Agreement limits your ability to file a charge or complaint with the Equal Employment Opportunity Commission, the Department of Labor, the National Labor Relations Board, the Occupational Safety and Health Administration, the California Department of Fair Employment and Housing, the Securities and Exchange Commission or any other federal, state or local governmental agency or commission ("Government Agencies"). You further understand this Agreement does not limit your ability to communicate with any Government Agencies or otherwise participate in any investigation or proceeding that may be conducted by any Government Agency, including providing documents or other information, without notice to the Company. While this Agreement does not limit your right to receive an award for information provided to the Securities and Exchange Commission, you understand and agree that, to maximum extent permitted by law, you are otherwise waiving any and all rights you may have to individual relief based on any claims that you have released and any rights you have waived by signing this Agreement.

14. Section 1542 Waiver. In giving the release herein, which includes claims which may be unknown to you at present, you acknowledge that you have read and understand Section 1542 of the California Civil Code, which reads as follows:

> **"A general release does not extend to claims which the creditor does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her must have materially affected his or her settlement with the debtor."**

You hereby expressly waive and relinquish all rights and benefits under that section and any law of any other jurisdiction of similar effect with respect to your release of claims herein, including but not limited to your release of unknown claims.

15. Representations. You hereby represent that you have been paid all compensation owed and for all hours worked, have received all the leave and leave benefits and protections for which you are eligible pursuant to the Family and Medical Leave Act, the California Family Rights

Act, or otherwise, and have not suffered any on-the-job injury for which you have not already filed a workers' compensation claim.

16. Miscellaneous. This Agreement, including Exhibit A, constitutes the complete, final and exclusive embodiment of the entire agreement between you and the Company with regard to its subject matter. It is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations. This Agreement may not be modified or amended except in a writing signed by both you and a duly authorized officer of the Company. This Agreement will bind the heirs, personal representatives, successors and assigns of both you and the Company, and inure to the benefit of both you and the Company, their heirs, successors and assigns. If any provision of this Agreement is determined to be invalid or unenforceable, in whole or in part, this determination will not affect any other provision of this Agreement and the provision in question will be modified so as to be rendered enforceable. This Agreement will be deemed to have been entered into and will be construed and enforced in accordance with the laws of the State of California without regard to conflict of laws principles. Any ambiguity in this Agreement shall not be construed against either party as the drafter. Any waiver of a breach of this Agreement shall be in writing and shall not be deemed to be a waiver of any successive breach. This Agreement may be executed in counterparts and facsimile signatures will suffice as original signatures.

If this Agreement is acceptable to you, please sign below and return the original to me. You have twenty-one (21) calendar days to decide whether you would like to accept this Agreement, and the Company's offer contained herein will automatically expire if you do not sign and return it within this timeframe.

We wish you the best in your future endeavors.

Sincerely,

By: /s/ Gary Titus
Gary Titus
Chairman of the Board of Directors

I HAVE READ, UNDERSTAND AND AGREE FULLY TO THE FOREGOING AGREEMENT:

/s/ Andrew Gengos
Andrew Gengos

December 13, 2016
Date

EXHIBIT A

IMMUNOCELLULAR THERAPEUTICS, LTD.

EMPLOYEE CONFIDENTIAL INFORMATION AND INVENTIONS ASSIGNMENT AGREEMENT

In consideration of my employment or continued employment by Immunocellular Therapeutics, Ltd., a Delaware corporation (" ***Company*** "), and the compensation paid to me now and during my employment with the Company, I agree to the terms of this Agreement as follows:

1. CONFIDENTIAL INFORMATION PROTECTIONS.

1.1 Nondisclosure; Recognition of Company's Rights . At all times during and after my employment, I will hold in confidence and will not disclose, use, lecture upon, or publish any of Company's Confidential Information (defined below), except as may be required in connection with my work for Company, or as expressly authorized by the President or Chief Executive Officer at the direction of the Board of Directors (each an " ***Officer*** ") of Company. I will obtain the Officer's written approval before publishing or submitting for publication any material (written, oral, or otherwise) that relates to my work at Company and/or incorporates any Confidential Information. I hereby assign to Company any rights I may have or acquire in any and all Confidential Information and recognize that all Confidential Information shall be the sole and exclusive property of Company and its assigns.

1.2 Confidential Information. The term " ***Confidential Information*** " shall mean any and all confidential knowledge, data or information related to Company's business or its actual or demonstrably anticipated research or development, including without limitation (a) trade secrets, inventions, ideas, processes, computer source and object code, data, formulae, programs, other works of authorship, know-how, improvements, discoveries, developments, designs, and techniques; (b) information regarding products, services, plans for research and development, marketing and business plans, budgets, financial statements, contracts, prices, suppliers, and customers; (c) information regarding the skills and compensation of Company's employees, contractors, and any other service providers of Company; and (d) the existence of any business discussions, negotiations, or agreements between Company and any third party.

1.3 Third Party Information. I understand that Company has received and in the future will receive from third parties confidential or proprietary information (" ***Third Party Information*** ") subject to a duty on Company's part to maintain the confidentiality of such information and to use it only for certain limited purposes. During and after the term of my employment, I will hold Third Party Information in strict confidence and will not disclose to anyone (other than Company personnel who need to know such information in connection with their work for Company) or use, Third Party Information, except in connection with my work for Company or unless expressly authorized by an officer of Company in writing.

1.4 No Improper Use of Information of Prior Employers and Others. I represent that my employment by Company does not and will not breach any agreement with any former employer, including any noncompete agreement or any agreement to keep in confidence or refrain from using information acquired by me prior to my employment by Company. I further represent that I have not entered into, and will not enter into, any agreement, either written or oral, in conflict with my obligations under this Agreement. During my employment by Company, I will not improperly make use of, or disclose, any information or trade secrets of any former employer or other third party, nor will I bring onto the premises of Company or use any unpublished documents or any property belonging to any former employer or other third party, in violation of any lawful agreements with that former employer or third party. I will use in the performance of my duties only information that is generally known and used by persons with training and experience comparable to my own, is common knowledge in the industry or otherwise legally in the public domain, or is otherwise provided or developed by Company.

2. INVENTIONS.

2.1 Definitions. As used in this Agreement, the term " ***Invention*** " means any ideas, concepts, information, materials, processes, data, programs, know-

how, improvements, discoveries, developments, designs, artwork, formulae, other copyrightable works, and techniques and all Intellectual Property Rights in any of the items listed above. The term " ***Intellectual Property Rights*** " means all trade secrets, copyrights, trademarks, mask work rights, patents and other intellectual property rights recognized by the laws of any jurisdiction or country. The term " ***Moral Rights*** " means all paternity, integrity, disclosure, withdrawal, special and any other similar rights recognized by the laws of any jurisdiction or country.

2.2 Prior Inventions. I have disclosed on **Exhibit A** a complete list of all Inventions that (a) I have, or I have caused to be, alone or jointly with others, conceived, developed, or reduced to practice prior to the commencement of my employment by Company; (b) in which I have an ownership interest or which I have a license to use; (c) and that I wish to have excluded from the scope of this Agreement (collectively referred to as " ***Prior Inventions*** "). If no Prior Inventions are listed in **Exhibit A** , I warrant that there are no

Prior Inventions. I agree that I will not incorporate, or permit to be incorporated, Prior Inventions in any Company Inventions (defined below) without Company's prior written consent. If, in the course of my employment with Company, I incorporate a Prior Invention into a Company process, machine or other work, I hereby grant Company a non-exclusive, perpetual, fully-paid and royalty-free, irrevocable and worldwide license, with rights to sublicense through multiple levels of sublicensees, to reproduce, make derivative works of, distribute, publicly perform, and publicly display in any form or medium, whether now known or later developed, make, have made, use, sell, import, offer for sale, and exercise any and all present or future rights in, such Prior Invention.

2.3 Assignment of Company Inventions. Inventions assigned to the Company or to a third party as directed by the Company pursuant to the subsection titled Government or Third Party are referred to in this Agreement as " ***Company Inventions*** ." Subject to the subsection titled Government or Third Party and except for Inventions that I can prove qualify fully under the provisions of California Labor Code section 2870 and I have set forth in **Exhibit A** , I hereby assign and agree to assign in the future (when any such Inventions or Intellectual Property Rights are first reduced to practice or first fixed in a tangible medium, as applicable) to Company all my right, title, and interest in and to any and all Inventions (and all Intellectual Property Rights with respect thereto) made, conceived, reduced to practice, or learned by me, either alone or with others, during the period of my employment by Company. Any assignment of Inventions (and all Intellectual Property Rights with respect thereto) hereunder includes an assignment of all Moral Rights. To the extent such Moral Rights cannot be assigned to Company and to the extent the following is allowed by the laws in any country where Moral Rights exist, I hereby unconditionally and irrevocably waive the enforcement of such Moral Rights, and all claims and causes of action of any kind against Company or related to Company's customers, with respect to such rights. I further acknowledge and agree that neither my successors-in-interest nor legal heirs retain any Moral Rights in any Inventions (and any Intellectual Property Rights with respect thereto).

2.4 Obligation to Keep Company Informed. During the period of my employment and for one (1) year after my employment ends, I will promptly and fully disclose to Company in writing (a) all Inventions authored, conceived, or reduced to practice by me, either alone or with others, including any that might be covered under California Labor Code section 2870, and (b) all patent applications filed by me or in which I am named as an inventor or co-inventor.

2.5 Government or Third Party . I agree that, as directed by the Company, I will assign to a third party, including without limitation the United States, all my right, title, and interest in and to any particular Company Invention.

2.6 Works for Hire. I acknowledge that all original works of authorship which are made by me (solely or jointly with others) within the scope of my employment and which are protectable by copyright are "works made for hire," pursuant to United States Copyright Act (17 U.S.C. Section 101).

2.7 Enforcement of Intellectual Property Rights and Assistance. During and after the period of my employment and at Company's request and expense, I will assist Company in every proper way, including consenting to and joining in any action, to obtain and enforce United States and foreign Intellectual Property Rights and Moral Rights relating to Company Inventions in all countries. If the Company is unable to secure my signature on any document needed in connection with such purposes, I hereby irrevocably designate and appoint Company and its duly authorized officers and agents as my agent and attorney in fact, which appointment is coupled with an interest, to act on my behalf to execute and file any such documents and to do all other lawfully permitted acts to further such purposes with the same legal force and effect as if executed by me.

2.8 Incorporation of Software Code. I agree that I will not incorporate into any Company software or otherwise deliver to Company any software code licensed under the GNU General Public License or Lesser General Public License or any other license that, by its terms, requires or conditions the use or distribution of such code on the disclosure, licensing, or distribution

of any source code owned or licensed by Company except as expressly authorized by the Company or in strict compliance with the Company's policies regarding the use of such software.

3. RECORDS. I agree to keep and maintain adequate and current records (in the form of notes, sketches, drawings and in any other form that is required by the Company) of all Inventions made by me during the period of my employment by the Company, which records shall be available to, and remain the sole property of, the Company at all times.

4. ADDITIONAL ACTIVITIES. I agree that during the term of my employment by Company, I will not (a) without Company's express written consent, engage in any employment or business activity that is competitive with, or would otherwise conflict with my employment by, Company; and (b) for the period of my employment by Company and for one (1) year thereafter, I will not either directly or indirectly, solicit or attempt to solicit any employee, independent contractor, or consultant of Company to terminate his, her or its relationship with Company in order to become an employee, consultant, or independent contractor to or for any other person or entity.

5. RETURN OF COMPANY PROPERTY. Upon termination of my employment or upon Company's request at any other time, I will deliver to Company all of Company's property, equipment, and documents, together with all copies thereof, and any other material containing or disclosing any Inventions, Third Party Information or Confidential Information and certify in writing that I have fully complied with the foregoing obligation. I agree that I will not copy, delete, or alter any information contained upon my Company computer or Company equipment before I return it to Company. In addition, if I have used any personal computer, server, or e-mail system to receive, store, review, prepare or transmit any Company information, including but not limited to, Confidential Information, I agree to provide the Company with a computer-useable copy of all such Confidential Information and then permanently delete and expunge such Confidential Information from those systems; and I agree to provide the Company access to my system as reasonably requested to verify that the necessary copying and/or deletion is completed. I further agree that any property situated on Company's premises and owned by Company is subject to inspection by Company's personnel at any time with or without notice. Prior to the termination of my employment or promptly after termination of my employment, I will cooperate with Company in attending an exit interview and certify in writing that I have complied with the requirements of this section.

6. NOTIFICATION OF NEW EMPLOYER. If I leave the employ of Company, I consent to the notification of my new employer of my rights and obligations under this Agreement, by Company providing a copy of this Agreement or otherwise.

7. GENERAL PROVISIONS.

7.1 Governing Law and Venue. This Agreement and any action related thereto will be governed and interpreted by and under the laws of the State of California without giving effect to any conflicts of laws principles that require the application of the law of a different state. I expressly consent to personal jurisdiction and venue in the state and federal courts for the county in which Company's principal place of business is located for any lawsuit filed there against me by Company arising from or related to this Agreement.

7.2 Severability. If any provision of this Agreement is, for any reason, held to be invalid or unenforceable, the other provisions of this Agreement will remain enforceable and the invalid or unenforceable provision will be deemed modified so that it is valid and enforceable to the maximum extent permitted by law.

7.3 Survival. This Agreement shall survive the termination of my employment and the assignment of this Agreement by Company to any successor or other assignee and shall be binding upon my heirs and legal representatives.

7.4 Employment . I agree and understand that nothing in this Agreement shall give me any right to continued employment by Company, and it will not interfere in any way with my right or Company's right to terminate my employment at any time, with or without cause and with or without advance notice.

7.5 Notices. Each party must deliver all notices or other communications required or permitted under this Agreement in writing to the other party at the address listed on the signature page, by courier, by certified or registered mail (postage prepaid and return receipt requested), or by a nationally-recognized express mail service. Notice will be effective upon receipt or refusal of delivery. If delivered by certified or registered mail, notice will be considered to have been given five (5) business days after it was mailed, as evidenced by the postmark. If delivered by courier or express mail service, notice will be considered to have been given on the delivery date reflected by the courier or express mail service receipt. Each party may change its address for receipt of notice by giving notice of the change to the other party.

7.6 Injunctive Relief . I acknowledge that, because my services are personal and unique and because I will have access to the Confidential Information of Company, any breach of this Agreement by me would cause irreparable injury to Company for which monetary damages would not be an adequate remedy and, therefore, will entitle Company to injunctive relief

(including specific performance). The rights and remedies provided to each party in this Agreement are cumulative and in addition to any other rights and remedies available to such party at law or in equity.

7.7 Waiver. Any waiver or failure to enforce any provision of this Agreement on one occasion will not be deemed a waiver of that provision or any other provision on any other occasion.

7.8 Export . I agree not to export, reexport, or transfer, directly or indirectly, any U.S. technical data acquired from Company or any products utilizing such data, in violation of the United States export laws or regulations.

7.9 Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original and all of which shall be taken together and deemed to be one instrument.

7.10 Entire Agreement. If no other agreement governs nondisclosure and assignment of inventions during any period in which I was previously employed or am in the future employed by Company as an independent contractor, the obligations pursuant to sections of this Agreement titled Confidential Information Protections and Inventions shall apply. This Agreement is the final, complete and exclusive agreement of the parties with respect to the subject matter hereof and supersedes and merges all prior communications between us with respect to such matters. No modification of or amendment to this Agreement, or any waiver of any rights under this Agreement, will be effective unless in writing and signed by me and an Officer of Company. Any subsequent change or changes in my duties, salary or compensation will not affect the validity or scope of this Agreement.

This Agreement shall be effective as of the first day of my employment with Company.

COMPANY:

Accepted and agreed

IMMUNOCELLULAR THERAPEUTICS, LTD.

By: /s/ David Fractor

Name: David Fractor

Title: Vice President of Finance

Address :

EMPLOYEE:

I HAVE READ, UNDERSTAND, AND ACCEPT THIS AGREEMENT AND HAVE BEEN GIVEN THE OPPORTUNITY TO REVIEW IT WITH INDEPENDENT LEGAL COUNSEL.

/s/ Andrew Gengos

(Signature)

Andrew Gengos

Name (Please Print)

September 30, 2015

Date

Address : 1680 Windy Mountain Ave.

Westlake Village, CA 91362

EXHIBIT A

INVENTIONS

1. Prior Inventions Disclosure. The following is a complete list of all Prior Inventions (as provided in Subsection 2.2 of the attached Employee Confidential Information and Inventions Assignment Agreement, defined herein as the "***Agreement***"):

X None

See immediately below:

_____

_____

_____

_____

_____

_____

Additional sheets attached.

2. Limited Exclusion Notification.

THIS IS TO NOTIFY you in accordance with Section 2870 of the California Labor Code that the foregoing Agreement between you and Company does not require you to assign or offer to assign to Company any Invention that you develop entirely on your own time without using Company's equipment, supplies, facilities or trade secret information, except for those Inventions that either:

a. Relate at the time of conception or reduction to practice to Company's business, or actual or demonstrably anticipated research or development; or

b. Result from any work performed by you for Company.

To the extent a provision in the foregoing Agreement purports to require you to assign an Invention otherwise excluded from the preceding paragraph, the provision is against the public policy of this state and is unenforceable.

This limited exclusion does not apply to any patent or Invention covered by a contract between Company and the United States or any of its agencies requiring full title to such patent or Invention to be in the United States.

Exhibit 23.1

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM'S CONSENT

We consent to the incorporation by reference in the Registration Statements of ImmunoCellular Therapeutics, Ltd. on Form S-3 (File No. 333-208788) and Forms S-8 (File Nos. 333-214608, 333-192177, 333-183715, 333-171652, 333-155199, 333-151968 and 333-147278) of our report, which includes an explanatory paragraph as to the Company's ability to continue as a going concern, dated March 9, 2017 , with respect to our audits of the consolidated financial statements of ImmunoCellular Therapeutics, Ltd. as of December 31, 2016 and 2015 and for the years ended December 31, 2016, 2015 and 2014, which report is included in this Annual Report on Form 10-K of ImmunoCellular Therapeutics, Ltd. for the year ended December 31, 2016.

/s/ Marcum LLP
Marcum LLP
Irvine, CA
March 9, 2017

Exhibit 31.1

Certification of the Principal Executive Officer Under Section 302 of the Sarbanes-Oxley Act

I, Anthony Gringeri, Ph.D., certify that:

1. I have reviewed this report on Form 10-K of ImmunoCellular Therapeutics, Ltd.;

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

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

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

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

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

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

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

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

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

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

Date: March 9, 2017

By: /s/ Anthony Gringeri

Name: Anthony Gringeri, Ph.D.

Title: President and Chief Executive Officer

Exhibit 31.2

Certification of the Principal Financial Officer Under Section 302 of the Sarbanes-Oxley Act

I, David Fractor, certify that:

1. I have reviewed this report on Form 10-K of ImmunoCellular Therapeutics, Ltd.;

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

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

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

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

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

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

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

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

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

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

Date: March 9, 2017

By: /s/ David Fractor

Name: David Fractor

Title: Principal Financial and Accounting Officer

Exhibit 32.1

CERTIFICATION OF THE PRINCIPAL EXECUTIVE OFFICER

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. § 1350), the undersigned officer of ImmunoCellular Therapeutics, Ltd. (the "Company") hereby certifies that, to the best of his knowledge:

1. The Company's Annual Report on Form 10-K for the period ended December 31, 2016 (the "Annual Report"), to which this Certification is attached as Exhibit 32.1, fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

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

Date: March 9, 2017

By: /s/ Anthony Gringeri

Name: Anthony Gringeri, Ph.D.

Title: President and Chief Executive Officer

"This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of ImmunoCellular Therapeutics, Ltd. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing."

Exhibit 32.2

CERTIFICATION OF THE PRINCIPAL FINANCIAL OFFICER

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. § 1350), the undersigned officer of ImmunoCellular Therapeutics, Ltd. (the "Company") hereby certifies that, to the best of his knowledge:

1. The Company's Annual Report on Form 10-K for the period ended December 31, 2016 (the "Annual Report"), to which this Certification is attached as Exhibit 32.1, fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

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

Date: March 9, 2017

By: /s/ David Fractor

Name: David Fractor

Title: Principal Financial and Accounting Officer

"This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of ImmunoCellular Therapeutics, Ltd. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing."