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, 2017

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 1-12830

BioTime, Inc.
(Exact name of registrant as specified in its charter)

California	**94-3127919**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

1010 Atlantic Avenue, Suite 102
Alameda, California 94501
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code **(510) 521-3390**

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

Title of each class	**Name of exchange on which registered**
Common shares, no par value	NYSE American
Common share purchase warrants expiring October 1, 2018	NYSE American

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

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

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

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

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

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

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

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

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

The approximate aggregate market value of voting common shares held by non-affiliates computed by reference to the price at which common shares were last sold as of June 30, 2017 was $223,153,000. Shares held by each executive officer and director and by each person who beneficially owns more than 5% of the outstanding common shares have been excluded in that such persons may under certain circumstances be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

The number of common shares outstanding as of March 13, 2018 was 126,869,152.

Documents Incorporated by Reference

Portions of the registrant's Proxy Statement for 2018 Annual Meeting of Shareholders are incorporated by reference in Part III

BioTime, Inc.
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PART I

Statements made in this Form 10-K that are not historical facts may constitute forward-looking statements that are subject to risks and uncertainties that could cause actual results to differ materially from those discussed. Words such as "expects," "may," "will," "anticipates," "intends," "plans," "believes," "seeks," "estimates," and similar expressions identify forward-looking statements. See "Risk Factors."

References to "BioTime", "we" and "our" means BioTime, Inc. and its subsidiaries and affiliates unless the context otherwise indicates.

The description or discussion, in this Form 10-K, of any contract or agreement is a summary only and is qualified in all respects by reference to the full text of the applicable contract or agreement.

INDUSTRY AND MARKET DATA

This Annual Report ("Report") on Form 10-K contains market data and industry forecasts that were obtained from industry publications, third party market research and publicly available information. These publications generally state that the information contained therein has been obtained from sources believed to be reliable. While we believe that the information from these publications is reliable, we have not independently verified such information.

This Annual Report on Form 10-K also contains estimates and other statistical data made by independent parties and by us relating to market size and growth and other data about our industry. We obtained the industry and market data in this Report from our own research as well as from industry and general publications, surveys and studies conducted by third parties, some of which may not be publicly available. Such data involves a number of assumptions and limitations and contains projections and estimates of the future performance of the industries in which we operate that are subject to a high degree of uncertainty. We caution you not to give undue weight to such projections, assumptions and estimates.

Deconsolidation of OncoCyte Corporation Effective February 17, 2017

Effective February 17, 2017, BioTime deconsolidated OncoCyte Corporation ("OncoCyte") financial statements and results of operations from those of BioTime under applicable generally accepted accounting principles due to the decrease in BioTime's percentage ownership in OncoCyte below 50% as a result of the issuance of 625,000 shares of OncoCyte common stock to certain investors who exercised OncoCyte warrants. Prior to that date, OncoCyte was a majority-owned and consolidated subsidiary of BioTime. Since February 17, 2017, BioTime has accounted for OncoCyte using the equity method of accounting, electing the fair value option, with all subsequent changes in fair value included in BioTime's consolidated statements of operations in other income and expenses, net. As of, and for each reporting period after February 17, 2017, the fair value of BioTime's interest in OncoCyte is determined by the number of shares of OncoCyte held by BioTime and the closing price of the OncoCyte common stock as quoted on NYSE American: OCX.

OncoCyte's assets and liabilities are not included in BioTime's audited consolidated balance sheet at December 31, 2017 due to the deconsolidation. The fair value of OncoCyte shares owned by BioTime is shown on BioTime's audited consolidated balance sheet as of December 31, 2017. BioTime's audited consolidated balance sheet at December 31, 2016 includes OncoCyte's assets and liabilities, after intercompany eliminations. BioTime's audited consolidated statements of operations for the year ended December 31, 2017 include OncoCyte's results from January 1, 2017 through February 16, 2017, the day immediately preceding the deconsolidation.

The deconsolidation of OncoCyte is sometimes referred to as the "OncoCyte Deconsolidation" in this Report.

Audited financial statements of OncoCyte for the year ended December 31, 2017 will be included as financial statement schedules in Part IV, Item 15 and will be filed as an exhibit by an amendment to this Report.

Deconsolidation of Asterias Biotherapeutics, Inc. Effective May 13, 2016

Effective May 13, 2016, BioTime deconsolidated Asterias Biotherapeutics, Inc. ("Asterias") financial statements and results of operations from those of BioTime under applicable generally accepted accounting principles due to the decrease in BioTime's percentage ownership in Asterias from 57.1% to 48.7% as a result of a sale of common stock by Asterias in a public offering. Prior to that date, Asterias was a majority-owned and consolidated subsidiary of BioTime. Since May 13, 2016, BioTime has accounted for Asterias using the equity method of accounting, electing the fair value option, with all subsequent changes in fair value included in BioTime's consolidated statements of operations in other income and expenses, net. As of, and for each reporting period after May 13, 2016, the fair value of BioTime's interest in Asterias is determined by the number of shares of Asterias held by BioTime and the closing price of the Asterias common stock as quoted on NYSE American: AST. Asterias' assets and liabilities are not included in BioTime's audited consolidated balance sheet at December 31, 2016 due to the deconsolidation. The fair value of Asterias shares owned by BioTime is shown on BioTime's consolidated balance sheets as of December 31, 2017 and 2016. BioTime's audited consolidated statements of operations for the year ended December 31, 2016 include Asterias' results from January 1, 2016 through May 12, 2016, the day immediately preceding the deconsolidation. Asterias' results are not included in BioTime's audited consolidated statements of operations for the year ended December 31, 2017.

The deconsolidation of Asterias is sometimes referred to as the "Asterias Deconsolidation" in this Report.

Audited financial statements of Asterias for the years ended December 31, 2017 and 2016 are included as financial statement schedules in Part IV, Item 15, and are filed as an exhibit to this Report.

For further discussion see the Notes to Consolidated Financial Statements and Management's Discussion and Analysis of Financial Condition and Results of Operations included elsewhere in this Report.

ITEM 1. BUSINESS

OVERVIEW

Overview of Business

BioTime is a clinical-stage biotechnology company targeting degenerative diseases. Our programs are based on two core proprietary technology platforms: cell replacement and cell/drug delivery. With our cell replacement platform, we are creating new cells and tissues with our pluripotent and progenitor cell technologies. These cells and tissues are developed to replace those that are either rendered dysfunctional or lost due to degenerative diseases. Our cell/drug delivery programs are based upon our proprietary *HyStem*® cell and drug delivery matrix technology. *HyStem*® was designed to provide for the transfer, retention, engraftment and metabolic support of cellular replacement therapy.

Our lead cell replacement clinical program is *OpRegen*®, a retinal pigment epithelium cell replacement therapy, is in a Phase I/IIa, multicenter trial for the treatment of late-stage, dry age-related macular degeneration (dry-AMD). There are currently no FDA-approved therapies for dry-AMD, which accounts for approximately 90% of all age-related macular degeneration cases, and is the leading cause of blindness in people over the age of 60.

Our lead cell delivery clinical program is *Renevia*®, which met its primary endpoint in a European pivotal clinical trial in patients with HIV-associated facial lipoatrophy. On March 13, 2018 we submitted a design dossier for EU market clearance (CE Mark) for the use of *Renevia*® as a device to aid in transferring a patient's own adipose tissue to treat certain forms of facial lipoatrophy, or fat loss. We believe this European CE Mark submission is a gateway to the much larger, multi-billion dollar market opportunity of cosmetic facial aesthetics.

BioTime's research has created numerous promising technologies. We are creating value for shareholders by developing some of these technologies ourselves through our clinical development programs, while also unlocking the value of others through partnering and strategic transactions. As a result, we have significant equity holdings in two publicly-traded companies, Asterias Biotherapeutics, Inc. ("Asterias") and OncoCyte Corporation ("OncoCyte"), which we founded and which, until recently, were our majority-owned, consolidated subsidiaries. Asterias (NYSE American: AST) is presently focused on advancing three clinical-stage programs that have the potential to address areas of very high, unmet medical need in the fields of neurology (spinal cord injury) and oncology (acute myeloid leukemia and lung cancer). OncoCyte (NYSE American: OCX) is developing confirmatory diagnostic tests for lung cancer, breast cancer, and bladder cancer utilizing novel liquid biopsy technology. The combined market value of BioTime's holdings in Asterias and OncoCyte was approximately $95.2 million as of February 28, 2018.

We also have a new majority-owned subsidiary, AgeX Therapeutics, Inc. ("AgeX"), which we formed in 2017 to continue development of early-stage programs focusing on the development of technology relating to cell immortality, regenerative biology, and aging and age-related diseases. AgeX's initial programs focus on utilizing brown adipose tissue in targeting diabetes, obesity, and heart disease; and induced tissue regeneration ("iTR") in utilizing the human body's own abilities to scarlessly regenerate tissues damaged from age or trauma. AgeX has raised more than $10.7 million in equity funding from institutional and private investors, which has allowed BioTime to focus its resources on its clinical programs in its core therapeutic sectors. On August 2, 2017, AgeX initially raised approximately $10.0 million from the sale of its common stock at a price of $2.00 per share. BioTime continues to hold 28.8 million shares of AgeX. Our management and Board of Directors are exploring a number of options for having AgeX become a publicly-traded company, including a potential tax-free pro rata distribution of all AgeX shares to BioTime shareholders.

The technologies being developed by BioTime, our affiliates and our subsidiaries have the potential to significantly improve the treatment of degenerative diseases, which affect large numbers of people. We and our affiliates currently have multiple product candidates in human clinical trials: one met its primary endpoint in a pivotal study in Europe and could be approved by the end of this year, one is a blood test to help diagnose lung cancer, one may be helping spinal cord injury victims regain full or partial use of their hands and one may be the first treatment for the leading cause of blindness in people over 60. We also have several other promising programs that may help to address some of the biggest unmet medical needs faced by the world's aging population.

BioTime is incorporated in the State of California. Our common shares trade on the NYSE American and the Tel Aviv Stock Exchange under the symbol "BTX." Our principal executive offices are located at 1010 Atlantic Avenue, Suite 102, Alameda, CA 94501, and our phone number at that address is (510) 521-3390. Our website address is www.biotime.com. The information on, or that can be accessed through our website is not part of this Report. We also make available, free of charge through our website, our most recent annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and any amendments to those reports, as soon as reasonably practicable after the reports are electronically filed with or furnished to the Securities and Exchange Commission (the "SEC").

Overview of Product Candidates Being Developed by BioTime

Pipeline

Our clinical programs are based on two proprietary, core technology platforms: cell/drug delivery and cell replacement.

The near-term clinical development focus for our two lead clinical programs is in two therapeutic fields: Aesthetics and Ophthalmology.

Cell Replacement:

Ophthalmology:

OpRegen®

OpRegen® is our lead ophthalmic product for the treatment of the dry form of age-related macular degeneration. It is a suspension of terminally differentiated retinal pigment epithelial (RPE) cells that are derived from pluripotent cells. RPE cells form the back lining of the retina and support the function of photoreceptors (rods and cones). RPE cells can be damaged and lost in various forms of retinal degeneration. The *OpRegen*® therapeutic approach is to replace damaged or lost RPE cells with the goals of slowing disease progression in order to preserve vision, and/or restore visual function. *OpRegen*® is currently in a Phase I/IIa clinical trial for the treatment of late-stage dry-AMD. Age-related macular degeneration (AMD) affects more than 30 million people worldwide and is the leading cause of blindness in people over the age of 60. Approximately 90 percent of AMD patients suffer from the dry form, also referred to as dry-AMD, for which there is no therapy approved by the United States Food and Drug Administration (FDA). This program is currently being conducted by our 98.8% owned subsidiary Cell Cure Neurosciences, Ltd. ("Cell Cure"). Further references to this program may be described as being conducted by BioTime. More detail on *OpRegen*® and the trial data to date can be found below under THERAPEUTIC PRODUCT CANDIDATES BEING DEVELOPED BY BIOTIME – Cell Replacement – Ophthalmology—"*OpRegen*®."

Retinal restoration

In 2017, we expanded our ophthalmology portfolio through the acquisition of exclusive global rights to technology that allows the generation of three-dimensional human retinal tissue derived from human pluripotent cells. This tissue contains all the cell types and layers of the human retina and has shown evidence of functional integration in proof of concept animal models for advanced retinal degeneration. The technology is being developed to potentially treat or prevent a variety of retinal degenerative diseases and injuries. In 2017, the National Institutes of Health (NIH) awarded us a grant of up to $1.56 million to further develop this innovative, next generation vision restoration program for retinal diseases and injuries, which severely impact the quality of life for millions of people who have limited treatment options.

Cell/Drug Delivery:

Aesthetics:

Renevia®

Renevia®, our lead facial aesthetics product, is being developed as a potential treatment for facial lipoatrophy. “Lipoatrophy” means the loss of fat tissue which may be caused by several factors, including trauma, aging or drug side effects such as those that cause HIV-associated lipoatrophy. *Renevia*® consists of our proprietary cell and drug delivery matrix (*HyStem*®) combined with the patient’s own fat or adipose progenitor cells. As a potential alternative to traditional fat transfer procedures, *Renevia*® is designed to mimic the naturally-occurring extracellular matrix in the body and provide a 3-D scaffold that supports effective cell transplant, retention, engraftment and metabolic support. *Renevia*® is being developed with the goal of providing a natural looking and feeling, long-lasting option for facial volume restoration. Additional information about *HyStem*® can be found below under TECHNOLOGY PLATFORMS — *HyStem*® Delivery Technology.

In 2017 *Renevia*® met the primary endpoint of implanted volume retention in a pivotal clinical trial in Europe to assess its safety and efficacy in restoring facial volume in patients whose subcutaneous fat, or adipose tissue, has been lost due to a side effect of certain drugs used to treat some patients with HIV. Based on these clinical trial results, on March 13, 2018 we filed for marketing authorization in the European Union (EU) for certain forms of facial lipoatrophy. We anticipate approval later this year. For more detail on *Renevia*® and the trial data to date, please see THERAPEUTIC PRODUCT CANDIDATES BEING DEVELOPED BY BIOTIME — Cell/Drug Delivery – Aesthetics – “*Renevia*®”, below.

We view our European clinical trials of *Renevia*® as being supportive of the U.S. development of *Renevia*®, for treating facial lipoatrophy, whether from drugs, trauma or aging. A U.S. investigator-led trial of *Premvia*™ began in late 2017 for use in the treatment of age-related facial lipoatrophy. *Premvia*™ has the same composition as *Renevia*®. Results of this investigator-led trial are expected later this year. A company sponsored exploratory study of *Renevia*® for use in treating age-related facial atrophy is expected to commence in Europe later this year. *Premvia*™, is a *HyStem*® hydrogel formulation that has already received FDA 510(k) clearance for the management of wounds, including partial and full-thickness wounds, ulcers, tunneled/undermined wounds, surgical wounds, and burns.

Other Cell/Drug Delivery:

We are also developing *HyStem*® for the delivery of therapeutic drugs and cells to localized areas of the body, including for sustained drug release in the targeted area.

ReGlyde™

ReGlyde™ is another *HyStem*® product in preclinical development as a device for viscosupplementation and as a platform for intraarticular drug delivery in osteoarthritis (OA). The viscosupplementation device program aims to administer *ReGlyde*™ directly into OA affected joints to provide joint lubrication to reduce pain and improve quality of life. The drug delivery program seeks to enable the sustained release of therapeutics in affected OA joints to help slow or reverse disease progression, in addition to alleviating pain and improving joint function.

Products for Orthopedic Indications

We are developing a bone grafting product under a research and development agreement and a licensing agreement with Heraeus Medical GmbH. The goal of this program is to develop innovative bone grafting products that could potentially address difficult to heal or compromised bone fractures based on the use of our proprietary *PureStem*® progenitor cell technology. This program is currently being conducted by our 99.8% owned subsidiary OrthoCyte Corporation (“OrthoCyte”), as such, further herein, references to this project may be described as being conducted by BioTime.

Products Enhancements

As part of our therapeutic and delivery program, we are also developing *HyStem*® product enhancements, including a frozen liquid product format, which, if successful, will make *HyStem*® products significantly easier for physicians to administer.

Overview of Product Candidates of Public Affiliates

Asterias is a clinical-stage biotechnology company dedicated to developing cell-based therapeutics to treat neurological conditions associated with demyelination and cellular immunotherapies to treat cancer. OncoCyte is developing confirmatory diagnostic tests for lung cancer, breast cancer, and bladder cancer utilizing novel liquid biopsy technology. The combined market value of BioTime's holdings in Asterias and OncoCyte was approximately $95.2 million as of February 28, 2018.

Therapeutic Products in Neurology and Oncology

Asterias currently has three clinical programs:

- AST-OPC1 is an oligodendrocyte progenitor cell population derived from pluripotent stem cells that is currently in a Phase I/IIa clinical trial for spinal cord injuries ("SCI") that has been partially funded by the California Institute for Regenerative Medicine;
- AST-VAC2 is a non-patient-specific ("off-the-shelf") cancer immunotherapy derived from pluripotent stem cells for which a clinical trial in non-small cell lung cancer is being funded and sponsored by Cancer Research UK, the world's largest independent cancer research charity; and
- AST-VAC1 is a patient-specific cancer immunotherapy which has generated positive Phase 2 data in the treatment of Acute Myeloid Leukemia ("AML").

Liquid Biopsies for Diagnosis of Cancer

Our affiliate OncoCyte is focused on the discovery, development, and commercialization of innovative, biopsy tests that improve diagnosis and reduce healthcare costs for some of the most common and deadly cancers. They are developing confirmatory diagnostic tests for areas of high unmet need including lung cancer, breast cancer, and bladder cancer utilizing novel liquid biopsy technology. While current biopsy tests use invasive surgical procedures to provide tissue samples to determine if a tumor is benign or malignant, OncoCyte is developing a next generation of diagnostic tests that will be based on liquid biopsies using blood or urine samples.

Overview of AgeX Product Candidates

AgeX is applying technology relating to cellular immortality and regenerative biology to aging and age-related diseases. AgeX has three initial areas of product development:

- AGEX-BAT1 consists of pluripotent stem cell-derived brown adipocytes is initially planned to be developed as a potential treatment for type 2 diabetes;
- AGEX-VASC1 consists of vascular progenitors that will be targeting cardiac ischemia; and
- iTR (induced Tissue Regeneration), which is being designed as a systemic therapy for inducing the scarless regeneration of tissues.

STRATEGY

As we transition into a clinical and commercial-ready company, our near-term focus continues to be on three primary objectives: Clinical Progress, Simplification and Unlocking Value.

Clinical Progress

Our efforts are focused on progressing our therapeutic products through clinical development. Our organizational capabilities are being aligned to execute on this objective to better position us to design, execute and oversee trials, with the goal of generating significant value-creating data in the near-term, and enabling future commercialization of our product candidates. Clinical progress success will allow the company to create greater value for our shareholders, as well as allow us to better resource several other programs that are based on our core technologies.

Simplification

Because our research created numerous promising technologies that we developed in part through a range of subsidiaries and partnership relationships, BioTime's structure became complex over time. Over the last two years we have focused on simplification. We will continue to work on simplifying our corporate, financial and organizational structure to allow us to execute our objectives more efficiently, while also making it much easier for shareholders and potential investors to better understand our company.

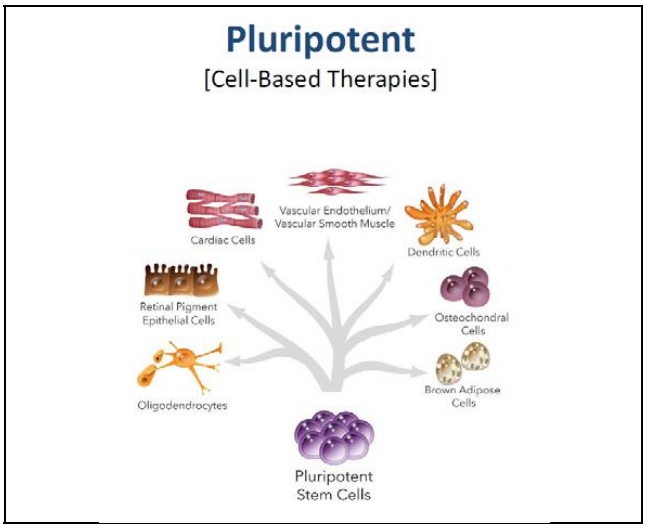
Unlocking Value

Our purpose is to deliver therapies to patients with significant unmet, or under-met, needs, while creating value for our investors. BioTime's research has created numerous valuable technologies. We are creating value for shareholders by developing some of these technologies ourselves through our clinical development programs while unlocking the value of others through the execution of various strategies, including partnering, sale of non-core assets, creation of companies, spinoffs, and the implementation of our simplification plans. We expect to continue to do so when we deem it in the best interest of our shareholders.

TECHNOLOGY PLATFORMS

Cell Replacement Technology:

BioTime believes that it and its subsidiaries and affiliates have the world's premier collection of pluripotent cell assets. Pluripotent cells, which we believe are capable of becoming any of the cell types of the human body, have potential applications in many areas of medicine with large unmet patient needs, including various age-related degenerative diseases and degenerative conditions for which there are presently no cures.

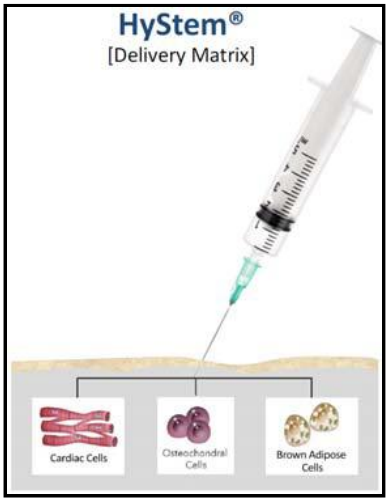


Unlike pharmaceuticals that require a molecular target, therapeutic strategies based on the use of pluripotent cells are generally aimed at regenerating or replacing affected cells and tissues, and therefore, may have broader applicability than many pharmaceutical products. Pharmaceuticals and therapies that require systemic delivery into the body often have unexpected results, or side effects, that can limit the usefulness on the particular therapy. Many times, the side effects are so detrimental that the therapy cannot be approved. Cell replacement, on the other hand, is locally administered, so systemic side effects are not a primary concern in therapeutic development. The risk profile more closely resembles that of transplant medicine, focused more on whether the transplanted cells are rejected by the body and whether the cells do what they are expected to do.

BioTime has two proprietary cell therapy platforms, *PureStem*® progenitor cells and pluripotent cell lines. *PureStem*® cells address significant challenges in regenerative medicine through their purity, proliferative capacity and ability to better predictably acquire tissue specificity or "differentiate," into a broad spectrum of cell types in a simplified and controlled fashion. These advantages may allow the production, on a commercial scale, of pure cultures of potentially therapeutic cell types that do not contain uncharacterized "undifferentiated" cell types. The pluripotent cell lines derived under current Good Manufacturing Practice (cGMP) conditions, are NIH-registered and are among the best-characterized and documented human stem cell lines available today, with donor medical history, adventitious agents testing, complete genome sequence, STR-fingerprint and HLA-type data available.

HyStem® Delivery Technology:

HyStem® is a patented biomaterial that mimics the extracellular matrix, the structural network of molecules surrounding cells in organs and tissues that is essential to cellular function and tissue integrity. Many tissue engineering and regenerative cell-based therapies will require the delivery of therapeutic cells in a matrix or scaffold for accurate anatomical delivery, cell retention and engraftment, guided tissue remodeling and proper function. *HyStem*® is a unique hydrogel that has been shown to support cellular attachment and proliferation *in vivo.* Current research at leading medical institutions has shown that *HyStem*® is compatible with a wide variety of cells and tissue types including brain, bone, skin, cartilage, vascular and heart tissues.



The patented technology underlying our *HyStem*® hydrogel products in development, such as *Renevia*®, *Premvia*® and *ReGlyde*™, was developed at the University of Utah and has been exclusively licensed to BioTime for human therapeutic uses. The *HyStem*® technology is based on a unique thiol cross-linking chemistry to prepare hyaluronan-based hydrogels. Since the first published report in 2002, there have been over 200 academic scientific publications supporting the biocompatibility of thiol cross-linked hyaluronan-based hydrogels and their applications as medical devices and in cell culture, tissue engineering, and animal models of cell-based therapies.

Due to the unique cross-linking chemistry, *HyStem*® hydrogels have the ability to mix cells and can be injected or applied as a gel which allows the hydrogel to conform to a cavity or space. This property of *HyStem*® hydrogels offers several distinct advantages over other hydrogels, including the possibility of combining bioactive materials with the hydrogel at the point of use. Building upon this platform, we are developing the *HyStem*® family of unique, biocompatible resorbable hydrogel products.

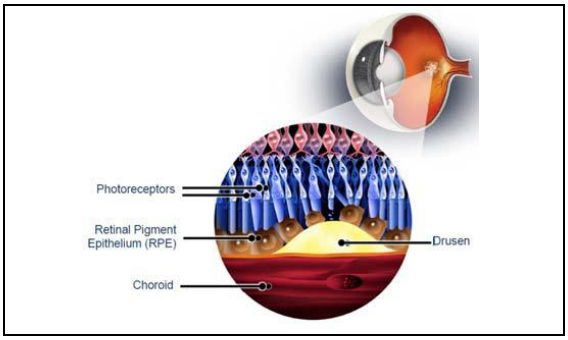
THERAPEUTIC PRODUCT CANDIDATES BEING DEVELOPED BY BIOTIME

Cell Replacement

Ophthalmology

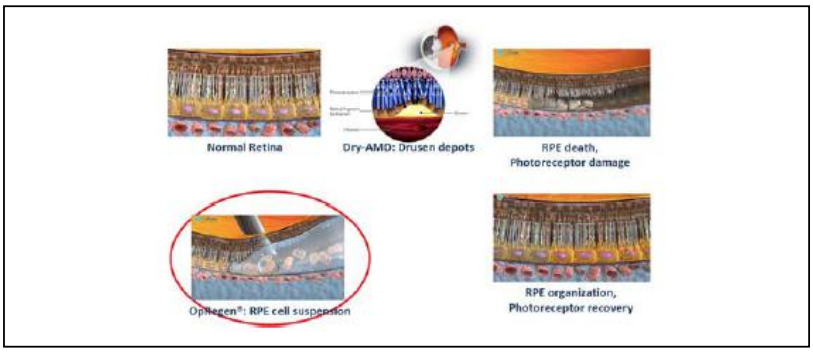
OpRegen®

Age-related macular degeneration, also known as “AMD”, is a gradual, progressive, deterioration of the macula, the small sensitive area in the center of the retina that provides clear central vision. Damage to the macula makes facial recognition, reading and driving difficult or impossible. There are two forms of AMD, the dry form and the wet form. The dry form, or “dry-AMD”, advances slowly toward geographic atrophy (GA) in which RPE cells and photoreceptors degenerate, or are lost. Once the atrophy involves the fovea (the center of the macula), patients lose their central vision and may develop into legal blindness. Its cause is unknown. It tends to progress more slowly than the wet type, and there is not an approved treatment or cure, other than nutritional supplements, which have shown limited efficacy in longer-term studies.



AMD affects more than 30 million people worldwide and approximately 1.6 million people are newly diagnosed annually in the U.S. It is the leading cause of vision loss in people over the age of 60. Approximately 90 percent of AMD patients suffer from the dry form, for which there are no FDA approved medical therapies.

We believe one of the most promising future therapies for dry-AMD is the replacement of the layer of damaged RPE cells that support and nourish the retina.



Our lead ophthalmology product, *OpRegen*®, is a cell replacement therapy derived from our pluripotent cell technology. It is currently in a Phase I/IIa clinical trial for the treatment of dry-AMD. *OpRegen*® is a proprietary formulation of RPE cells developed to be transplanted into the patient's eye, where the patient's own RPE cells are missing or compromised. *OpRegen*® consists of animal-free RPE cells with high purity and potency using a proprietary directed differentiated method. *OpRegen*® is formulated as a suspension of RPE cells and it was developed to address the significant unmet medical need of people suffering from dry aged-related macular degeneration.

Preclinical studies in rats have shown that following a single subretinal injection of *OpRegen*® as a suspension of cells, the cells rapidly organized into their natural monolayer structure and survive throughout the lifetime of the rat, which we believe is critical to the potential success of *OpRegen*® in humans.

OpRegen® is intended to be an allogeneic, "off-the-shelf," product provided to retinal surgeons in an "easy-to-use" form for transplantation. Unlike other investigational treatments for dry-AMD, and currently-marketed treatments for wet-AMD (Ranibizumab (*Lucentis*®) and Aflibercept (*Eylea*®)), that require multiple, frequent injections into the eye, we expect *OpRegen*® would potentially be administered in a single procedure, or once every several years.

The patients in our current Phase I/IIa study are or will be 50 years of age or older, whose dry-AMD has advanced to the GA stage, with absence of additional concomitant ocular disorders. The eye in which the disease has progressed the most will be treated, while the other eye will serve as a control. Following injection, the patients will be followed for 12 months at specified intervals, to evaluate the safety and tolerability of *OpRegen*®. Currently there are four study sites in Israel and two sites in the U.S. Enrollment in the third cohort was completed in January 2018. Cohort 4 enrollment is expected to begin in the second quarter of 2018. The fourth cohort will also include patients with better vision and a wide range of preliminary functional assessments, such as best corrected visual acuity.

Following the initial 12-month period, patients will continue to be evaluated at longer intervals for up to an additional five years following injection. A secondary objective of the clinical trial will be to examine the ability of transplanted *OpRegen*® to engraft, survive, and modulate disease progression in the patients. In addition to thorough characterization of visual function, several vision tests will be used to quantify improvements in reducing the progression of the disease.

Interim data from the nine subjects, with large areas of GA treated in Cohorts 1-3, represent an initial review of this ongoing Phase I/IIa open-label study and suggest that RPE cells are generally well-tolerated when administered by subretinal injection. Findings using a variety of imaging modalities suggest presence of cells in the subretinal space, an observation that is consistent with, and supported by, the data from the preclinical studies of *OpRegen*®. The surgical procedures were generally well-tolerated, with spectral domain optical coherence tomography (SD-OCT) images showing absorption of the subretinal fluid in the bleb within less than 48 hours after surgery and healing of the site of retinal penetration by the cannula within a few weeks. Fundus findings on clinical examination and by different imaging modalities evolved over the first few weeks and months, then largely stabilized. Best corrected visual acuity (BCVA) has remained stable in both the treated and fellow eyes of these advanced AMD patients. Subretinal pigmentation that correlates with irregular subretinal hyperreflectance on SD-OCT have been observed, suggesting the presence of cells in the subretinal space. Though it is not definitively known at this time whether these changes represent engraftment and survival of the transplanted cells, data from the preclinical studies suggest this is the most likely scenario.

Importantly, in this safety-focused study, no unexpected ocular AEs have been observed and those events expected to occur based on the procedures involved in *OpRegen*® administration, such as vitrectomy, have been mild in severity. The majority of these subjects had pre-existing epiretinal membranes (ERMs) at the time of study enrollment and several have experienced new or worsening ERM following the surgical procedure and *OpRegen*® injection. These subjects are being monitored during study follow-up, however, none have required surgical intervention to date. The independent data safety monitoring board (DSMB) has approved moving to the 4th Cohort based on the safety data from the first 3 cohorts. Cohort 4 will incorporate an additional variety of objective and subjective assessments to look for signs of potential efficacy as well as potential anatomical changes indicative of *OpRegen*® cell function following implantation.

We are currently actively enrolling additional subjects at a number of clinical trial sites in the United States and Israel. We currently have two active clinical trial sites the U.S. Both sites are headed by well-renowned physicians, David S. Boyer, MD of Retina-Vitreous Associates in Los Angeles and Dr. H. Richard McDonald of West Coast Retina Medical Group in San Francisco. We expect to open additional clinical trial sites in the U.S. later this year.

We have established an innovative cell therapy manufacturing facility located in the Jerusalem Bio Park on the campus of Hadassah University Hospital in Jerusalem, Israel. Our facility is equipped to produce *OpRegen*® and a range of other cell therapy products for human use in clinical trials as well as at a grade suitable for commercial use.

Retinal Restoration

We have acquired exclusive global rights to ophthalmology-related technology that was developed, in part, in collaboration with BioTime scientists, and includes composition and methodologies to develop 3-D retinal tissue constructs from pluripotent cells for implantation in patients with advanced stages of retinal degeneration.

This technology may allow generation of three-dimensional laminated human retinal tissue in a controlled manufacturing process. This could lead to retinal restoration treatments for a variety of advanced retinal degenerative diseases and ocular injuries, such as retinitis pigmentosa, macular degeneration, and diabetic retinopathy.

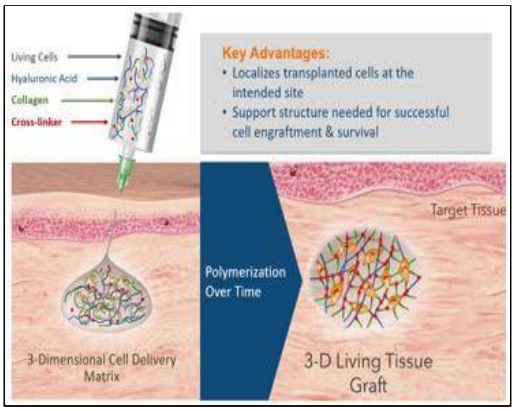
In September 2017, BioTime was awarded a grant of up to $1.56 million from the Small Business Innovation Research program of the National Institutes of Health. The grant provides funding to further develop BioTime's innovative, next generation vision restoration program for more advanced retinal diseases and injuries, which severely impact the quality of life for millions of people with no treatment option. This initiative aims at improving vision in people affected by blindness, whether caused by retinal injuries, age-related macular degeneration, retinitis pigmentosa or other causes.

Cell/Drug Delivery

Aesthetics

Renevia®

Renevia® consists of our proprietary cell-transplantation delivery matrix (*HyStem*®) combined with the patient's own adipose progenitor cells from their own fat. We are developing *Renevia*® as an injectable product to address needs in facial aesthetic procedures, and potentially certain reconstructive surgeries, such as breast reconstruction after cystectomy or lumpectomy. Our goal is to improve the process of transplanting a patient's own fat cells to potentially provide longer lasting volume, while maintaining a natural look and feel.



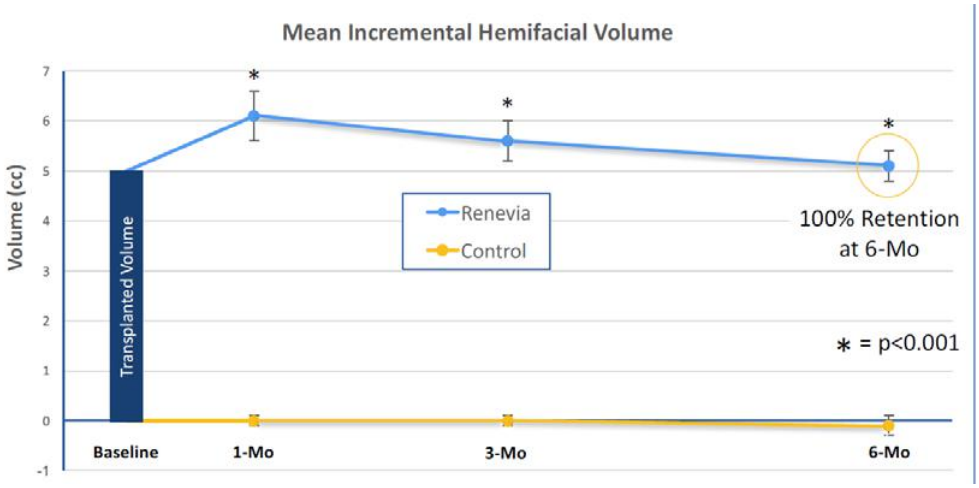
Lipoatrophy is the loss of fat tissue which can be caused by several factors, including trauma, aging or drug side effects such as in HIV-associated lipoatrophy. Cells obtained from a patient, such as adipose progenitor cells obtained through liposuction, can be transplanted back into the same patient at another location in the body without the risk of potential rejection or transmission of diseases associated with the transplant of allogenic donor tissues. However, the transplantation of cells alone, without the molecular matrix in which cells normally reside, often leads to widespread cell death, or the failure of the transplanted cells to remain at the transplant site. The transfer of cells in *Renevia*® may resolve this issue by maintaining the transplanted cells at the intended site and by providing a three-dimensional scaffold upon which cells can attach and rebuild normal tissue.

We conducted a multi-site pivotal clinical study in Europe to assess the efficacy of *Renevia*® as a delivery matrix for fat progenitor cells to restore skin volume in HIV patients whose subcutaneous adipose tissue has been lost as a side effect of their use of certain anti-retroviral drugs, like Stavudine and Zidovudine. The resulting facial wasting ages the individual's appearance prematurely and, along with a thinning of the skin, allows musculature and vasculature to be easily seen. Treatment of the condition improves the individual's self-esteem and quality of life.

Renevia® has met the primary endpoint of implanted volume retention in its pivotal European clinical trial. Based on these clinical trial results, we have filed for marketing authorization in the EU for certain forms of facial lipoatrophy. We anticipate approval later this year.

In the EU pivotal clinical trial, *Renevia*® treated patients retained approximately 100% of transplanted volume at six months (p<0.001), based on 3-D volume measurement of the implanted area, achieving the primary endpoint of the study (see Chart below). In addition to meeting the primary endpoint, treated patients retained an average 70% of the transplanted volume at 12 months and those patients that were observed after 18 months retained 64% of the transplanted volume. The data from additional patients at this time point are expected later this year. All *Renevia*® transplants were shown to be generally well tolerated and there were no device-related serious adverse events noted during this trial.

3-D Volume Measurement of the EU Pivotal Renevia Trial - Primary Endpoint (p<0.001)



In addition to serving as the basis for our European filing for marketing authorization, we also plan to use this trial to support initial safety findings for U.S. development of *Renevia*® for multiple forms of facial lipoatrophy.

The rapidly-growing global facial aesthetics market is estimated to be over $5 billion. Execution of our label expansion plans into this broader market has already begun with an investigator-led trial in the United States. In 2017, a U.S. investigator-led trial of our *Premvia*™ *HyStem*® product, which has 510 (k) clearance in the U.S. for wound management and is the same composition as *Renevia*®, was initiated to study the utility of *Premvia*™ for facial volume deficit in non-HIV patients. Although BioTime does not control execution of this trial, we expect preliminary data later this year. A company sponsored, exploratory study of *Renevia*® for cosmetic use is expected to commence in Europe later this year to study more broadly the utility of *Renevia*® for volume deficit in non-HIV patients.

BioTime plans to build upon this investigator-led trial and the EU pivotal trial data with additional studies, including an additional company-sponsored study in Europe and a pivotal trial in the U.S. We will continue our discussions with the FDA regarding a potential development pathway for *Renevia*® in the U.S. *Renevia*® is manufactured in the U.S. in compliance with cGMP requirements and has been tested pursuant to ISO 10993 standards for implantable medical devices.

Other Cell/Drug Delivery

ReGlyde™

ReGlyde™ is a proprietary formulation of the *HyStem*® hydrogel platform and is currently in preclinical development for viscosupplementation and drug delivery in osteoarthritis. Pre-clinical results are encouraging and have shown biocompatibility and preclinical efficacy signals in animal models.

Research and Development and License Agreements with Heraeus Medical GmbH

We are developing cellular therapeutics for orthopedic disorders with Heraeus Medical GmbH (“Heraeus”). The initial goal of this project is to develop innovative bone grafting therapies based on the use of our proprietary *PureStem*® human embryonic progenitor cell technology. Pursuant to the terms of our research and development agreement with Heraeus, BioTime is responsible for research and development of a cell-based bone grafting product using *PureStem*® technology and either *HyStem*® scaffold technology for delivery of bio-active components or scaffold technology owned by Heraeus or licensed to Heraeus from third parties.

AGEX PRODUCT CANDIDATES

Brown Fat Technology for Treatment of Metabolic Disorders

Brown adipose tissue (BAT) cells, or as they are sometimes called “brown fat cells,” have only recently become the subject of intense study by medical researchers. Unlike normal white adipose tissue which is the fat we normally associate with obesity and disorders correlated with obesity such as Type II Diabetes (T2D), BAT cells don’t simply store calories. BAT cells burn calories in the process of generating body heat. In addition, the cells secrete biologically-active molecules that are believed to play an important role in maintaining the body in a state of metabolic health. Recently it has also been reported that humans lose BAT as a function of age and the loss of these cells are implicated in unhealthy age-related changes in metabolism such as obesity, T2D, and metabolic syndrome. This recent discovery may have important consequences for regenerative medicine, since pluripotent cells provide a means of manufacturing all human cell types on an industrial scale, including BAT cells. AgeX’s research team has invented a technology to manufacture BAT cells and filed certain patent applications that it believes provides it with a path to develop BAT cells for the potentially large and growing markets associated with obesity, T2D, and cardiovascular disease. Prior to initiating human clinical trials, AgeX will be required to successfully perform extensive preclinical testing of the cells to determine their safety and efficacy in non-human model systems.

Treatment of Vascular Disorders

AgeX is using vascular cells derived from pluripotent stem cells, and other technologies, to develop treatments for vascular disorders. The therapeutic indications AgeX is targeting include age-related cardiovascular diseases such as coronary artery disease, heart failure, and peripheral artery disease. Therapeutics for age-related vascular disease represent some of the largest, fastest-growing actual and potential markets in the U.S. due to the aging baby boom generation. Cardiovascular disease is among the leading causes of death and disability in the U.S., and consumes a major and ever-increasing proportion of health care costs. The National Academy of Sciences has estimated that a potential 58 million Americans are currently afflicted with cardiovascular disease. AgeX is using technology for the differentiation of pluripotent stem cells into vascular endothelial cells in combination with the *PureStem*® technology to produce highly purified monoclonal embryonic vascular endothelial progenitor stem cells.

iTR

When tissues in the human body are damaged as a result of degenerative disease, injury, or surgery, there is generally a very limited capacity of the body to regenerate the tissue back to its original state. Exceptions to this rule are blood and the liver, both of which both show a remarkable capacity to restore equilibrium after the loss of cells. Other exceptions are tissues in the human body when it is first being formed. Early in development tissues such as the skin can repair itself scarlessly, but this ability is lost even before we are born. Another example in the animal kingdom is the Mexican salamander which shows a profound capacity to regenerate damaged tissues, even restoring severed limbs. However, in the adult human, most tissues simply scar rather than regenerate. AgeX’s scientists have been performing certain research to understand the molecular mechanisms regulating this loss of regenerative potential after the human body is formed based on its expertise in pluripotent stem cell technology. As a result, these scientists have invented a novel technology called “induced Tissue Regeneration” or “iTR.” iTR is designed to eventually facilitate the identification of therapies to induce scarless regeneration of tissues in the body that currently cannot naturally repair themselves. Examples of potential applications are numerous, but AgeX plans to initially focus on the regeneration of the heart following infection or heart failure, and scarless skin regeneration. iTR is a revolutionary new approach to medicine.

PRODUCT CANDIDATES OF PUBLIC AFFILIATES ASTERIAS BIOTHERAPEUTICS AND ONCOCYTE

Therapeutic Products in Neurology and Oncology

Asterias currently has three clinical-stage programs which have the potential to address areas of very high unmet medical need in the fields of neurology and oncology.

AST-OPC1 Oligodendrocyte Progenitor Cells for Spinal Cord Injury and Other Neurodegenerative Diseases

AST-OPC1 is an oligodendrocyte progenitor cell population. Oligodendrocyte progenitor cells are cells that become oligodendrocytes after injection. It has been shown preclinically to have three potentially reparative functions that address the complex pathologies observed at the injury site of a spinal cord injury. These activities of AST-OPC1 include production of neurotrophic factors, stimulation of vascularization, and induction of remyelination of denuded axons, all of which are critical for survival, regrowth and conduction of nerve impulses through axons at the injury site.

AST-OPC1 was tested in patients with acute spinal cord injury in a Phase I trial and is being tested in a Phase I/IIa dose escalation ("SCIStar study") trial. Asterias completed enrollment of the entire SCiStar study in December 2017. Asterias has enrolled a total of 25 subjects in the SCiStar study, plus five subjects from the previous Phase 1 safety trial. In October 2017, Asterias reported 12-month data from the SCiStar study's Cohort 2 (AIS-A 10 million-cell cohort), which included six subjects. At 12 months, 67% (4 out of 6) of Cohort two subjects recovered two or more motor levels on at least one side, exceeding the company's 12-month target of 45-50% of subjects achieving this level of improvement. In February 2018, Asterias provided a clinical trial update that highlighted the following:

- *Positive Safety Profile* - Asterias has dosed 25 subjects with AST-OPC1 in the SCiStar study and a total of 30 subjects including the five subjects from the previous Phase 1 safety trial who have been followed for as long as seven years. As of the update, there have been no serious adverse events (SAEs) related to the AST-OPC1 cells.

- *Cell Engraftment* - Together with the previously reported results from Cohort 2, the MRI results-to-date for 94% (17/18) of the Cohort 2-4 subjects provide supportive evidence that AST-OPC1 cells have durably engrafted at the injury site and helped to prevent cavitation. Cohort 3 consists of subjects with AIS-A injuries that were administered 20 million AST-OPC1 cells and Cohort 4 consists of subjects with AIS-B injuries that were administered 10 million AST-OPC1 cells.

- *Improved Motor Function* - At six months, 83% (15/18) of Cohort 2-4 subjects recovered at least 1 motor level on at least one side and 22% (4/18) of Cohort 2-4 subjects recovered two or more motor levels on at least one side.

Asterias will have various SCiStar study data readouts in 2018.

There are approximately 17,000 new spinal cord injuries annually (NSCIC SCI Facts and Figures at a Glance (2016)). There are currently no drugs approved by the United States Food and Drug Administration ("FDA") specifically for the treatment of spinal cord injury. As of 2016, the National Spinal Cord Injury Statistical Center reported that approximately 4,500 of these new spinal cord injuries annually in the U. S. are AIS-A, AIS-B, or AIS-C patients with C-4 to C-7 spinal cord injuries (https://www.nscisc.uab.edu/).

The FDA has granted Orphan Drug Designation of AST-OPC1 and designated AST-OPC1 a Regenerative Medicine Advanced Therapy for the treatment of acute SCI.

AST-VAC1: Autologous Telomerase-loaded Dendritic Cells

AST-VAC1 is an Asterias autologous (patient-specific) cancer vaccine designed to stimulate a patient's immune system to attack telomerase. Asterias is developing AST-VAC1 for the treatment of Acute Myeloid Leukemia ("AML"), the most common form of acute leukemia in adults. A Phase II clinical trial of AST-VAC1 was conducted and demonstrated that AST-VAC1 was successfully manufactured and released in 24 out of the 33 patients enrolled in the study. Twenty-one patients received AST-VAC1 in the study, including 19 in clinical remission and two in early relapse. AST-VAC1 was found to have a favorable safety and tolerability profile. Asterias has performed follow-up data collection on the 19 patients who were treated while in complete remission to determine the long-term effects of the AST-VAC1 administration on remission duration and disease-free survival. The results of this data collection were reported in an oral presentation in May 2015. Eleven of 19 patients (58%) remained in complete remission at a median follow-up of 52 months. These results compare to historical data suggesting that between 20-40% of patients would be expected to be relapse free at 3-4 years. Additionally, of the 7 patients in the higher risk over 60-year-old group, 4 (57%) remained relapse free at a median follow up of 54 months. Historically, relapse free survival rates in this population have been 10-20% at 3-4 years. Asterias has conducted an End of Phase II meeting with the FDA with the goal of reviewing the proposed clinical development plan for AST-VAC1.

The next major step in clinical development for AST-VAC1 would be to conduct a confirmatory Phase 2b study in higher risk patients over 60 years old.

AST-VAC2: hES Cell-Derived Allogeneic Dendritic Cells

AST-VAC2 is being developed by Asterias as an allogeneic, or non-patient specific, cancer vaccine candidate designed to stimulate patient immune responses to telomerase. AST-VAC2 is produced from human embryonic stem ("hES') cells that can be modified with any antigen. In September 2014, Asterias entered into a Clinical Trial and Option Agreement (the "CRUK Agreement") with Cancer Research UK ("CRUK") and Cancer Research Technology Limited, ("CRT"), a wholly-owned subsidiary of CRUK, pursuant to which CRUK has agreed to fund Phase I/II clinical development of AST-VAC2 loaded with the same LAMP-telomerase construct used in AST-VAC1. Under the terms of the CRUK Agreement, Asterias is responsible, at their own cost, for completing process development and manufacturing scale-up of the AST-VAC2 manufacturing process and transferring the resulting cGMP-compatible process to CRUK. CRUK is responsible, at its own cost, for manufacturing clinical grade AST-VAC2 and for carrying out the Phase I/II clinical trial of AST-VAC2. The Asterias technology transfer to CRUK has been completed and CRUK has received the necessary regulatory approvals to initiate the first-in-human (FIH) clinical trial of AST-VAC2 in the United Kingdom. Patient enrollment for this study is expected to begin in 2018.

Liquid Biopsies for Cancer Diagnostics

OncoCyte is developing diagnostic tests for lung cancer, breast cancer, and bladder cancer utilizing novel liquid biopsy technology. While current biopsy tests use invasive surgical procedures to provide tissue samples to determine if a tumor is benign or malignant, OncoCyte is developing highly accurate, easy to administer, non-invasive molecular diagnostic tests that will be based on liquid biopsies using blood or urine samples.

Clinical Trials-Lung Cancer Diagnostic

OncoCyte collaborated with the Wistar Institute of Anatomy and Biology ("Wistar") to develop one of the components of the confirmatory lung cancer diagnostic test in a large, multi-site clinical study. This collaboration involved a clinical study with over 2,000 blood samples obtained from patients with a high-risk profile for development of lung cancer, which led to the discovery of biomarkers that differentially express in lung cancer patients.

Confirmatory diagnostics are used in conjunction with a current standard of care screening procedure. A lung confirmatory diagnostic would be used in conjunction with Low Dose CAT Scan (LDCT) to confirm a suspicious nodule by yielding a secondary suspicious versus benign result. In the case of a benign result, the patient would not need additional invasive procedures to determine the presence of cancer. In the case of a suspicious result, additional procedures would be highly warranted.

Both Wistar and OncoCyte have presented data at several international and regional medical conferences including: American Thoracic Society in 2016 (Wistar proof of concept study); CHEST in 2016 (Wistar larger proof of concept study, which validated the results of the ATS study); American Thoracic Society in 2017 (OncoCyte research and validation study of 299 patients that resulted in a 95% sensitivity and 73% specificity and was an independent validation); and IASLC Chicago Multidisciplinary Symposium in Thoracic Oncology in 2017 (OncoCyte analytical validation).

Based on these study results, OncoCyte announced that it will initiate a clinical validation phase as well as start to ramp up its commercial capabilities in anticipation of the potential commercial launch of the test. When the CLIA lab was certified OncoCyte successfully conduced a small CLIA lab validation study to demonstrate that the full assay system utilized in the CLIA lab provides the same results on clinical samples as those obtained in the R&D lab. OncoCyte began a clinical validation study on a new set of approximately 300 blinded prospectively collected blood samples to confirm whether the sensitivity and specificity of the test remain within commercial parameters in a CLIA operational setting. In November of 2017, OncoCyte announced that during the process of running initial samples for the Clinical Validation Study, inconsistent analytic results were observed by OncoCyte's technical team. OncoCyte believes this was caused by a variance in a recently received lot of consumables used in the processing system that analyzes blood samples for the genetic markers that indicate whether lung nodules found in patients are benign or suspicious. To address this issue, OncoCyte has worked to resolve the causes of the inconsistent analytic results. In addition to seeking a solution to the problems it has encountered with the current analytic system, OncoCyte has announced that it is actively evaluating alternative analytic platforms that might be used to run *DetermaVu*™ diagnostic tests. At the conclusion of this process, data will be available to determine which platform delivers the most accurate, consistent and robust test results and acceptable cost. OncoCyte has announced that once it makes a final decision regarding analytic platforms, it plans to complete product development by carrying out a research and development verification study followed by an analytical validation study, and if those studies are successfully completed, a clinical validation study will be conducted, with a target of completing clinical validation for commercialization in 2018. OncoCyte has collected all the samples necessary for carrying out all these studies.

Clinical Trials—Breast Cancer Diagnostic

OncoCyte completed a strong proof of concept study for its breast cancer confirmatory test, and presented data at the San Antonio Breast Cancer Symposium (SABCS) in December of 2016. The study looked at serum from 100 women who had a mammogram with a result of BIRADs 3 or 4. The results of this analysis were promising, with a 15-marker model producing a sensitivity of 90% and a specificity of 76%.

OncoCyte is continuing development of a breast cancer confirmatory diagnostic by conducting a larger study that it expects will analyze blood samples from approximately 300 patients with benign or malignant nodules.

Clinical Trials—Bladder Cancer Diagnostic

As part of the clinical development of a urine-based bladder cancer diagnostic test, OncoCyte initiated a clinical trial in January 2014 and in May of 2015, they presented preliminary findings of their bladder research, which showed a sensitivity of 90% and a specificity of 83%. Sensitivity is the probability of detecting the presence of the disease accurately. A sensitivity of 90% means that 9 out of 10 cancers were detected. Specificity is the probability of accurately predicting not having the disease. OncoCyte has decided to pursue a co-development partner for its bladder cancer test.

2017 HIGHLIGHTS

BioTime achieved numerous strategic accomplishments during 2017, including advancing clinical trials and product development in several key programs.

Clinical Progress

- *Renevia*® met its primary endpoint in a European pivotal trial of HIV-associated lipoatrophy, which is a severe form of facial lipoatrophy. The primary endpoint was the change in hemifacial volume at six months in the treated patients compared to patients in the delayed treatment arm as measured by 3-D photographic volumetric assessment. On average, 5.1cc of hemifacial volume was measured after six months, which represents an approximate 100% retention of transplanted volume. There were no device-related serious adverse events noted during the trial.

- We presented positive data from the *OpRegen*® trial in dry-AMD. The interim data were presented on May 8, 2017 at the Annual Meeting of the Association for Research in Vision and Ophthalmology (ARVO) in Baltimore, Maryland by Eyal Banin, MD, PhD. Imaging analysis suggested the transplanted *OpRegen*® cells remained in place (engrafted) in an area of the scar that was completely depleted of retinal pigment epithelium. There was also possible evidence of a biological response with some areas appearing to show structural improvement (a thickening of the thinned area of retina above the scar) without any signs of retinal edema, a fluid build-up that can further compromise vision.

- We expanded the *OpRegen*® trial in dry-AMD to the U.S. with the opening of sites in Los Angeles and San Francisco headed by two well-renowned physicians, David S. Boyer, MD of Retina-Vitreous Associates and Dr. H. Richard McDonald of West Coast Retina Medical Group.

- We established an innovative cell therapy manufacturing facility in Jerusalem, Israel. This new 800 square meter (8,600 square feet), state-of-the-art, cGMP manufacturing facility is located in the Jerusalem Bio Park on the campus of Hadassah University Hospital. It is equipped to produce *OpRegen*® and a range of cell therapy products for human use in clinical trials as well as at a grade suitable for commercial use.

- We expanded our ophthalmology portfolio with technology for next generation retinal disease therapies that includes composition and methodologies to develop 3-D retinal tissue derived from human pluripotent stem cells for implantation in patients with advanced stages of retinal degeneration.

- We hosted a Key Opinion Leader event on the topic of dry-AMD. The meeting featured a presentation by a key opinion leader, David S. Boyer, MD, Retina-Vitreous Associates, who discussed the clinical perspective and cell therapy treatment options for patients with dry-AMD. BioTime's management team also provided an overview of the Company's ongoing clinical development work with *OpRegen*®, being studied for patients with dry-AMD, including recently presented clinical trial data from the 2017 Annual ARVO meeting.

Simplification

- We consolidated our ownership of *OpRegen*® through an equity swap that allowed us to increase our share ownership of our Israeli subsidiary, Cell Cure, which leads the *OpRegen*® development program. By acquiring the Cell Cure shares held by other shareholders, we now own nearly 99% of Cell Cure.

- BioTime formed a new subsidiary, AgeX to develop its programs focused on aging. AgeX consolidated certain BioTime subsidiaries and programs in the field of interventional gerontology. The formation of AgeX continues the implementation of BioTime's strategy to simplify its corporate structure and operations as well as focus resources on the continued clinical development of its two lead programs: *Renevia*® and *OpRegen*®. The formation of AgeX provides greater flexibility to explore external financing alternatives as well as strategic options to grow its technology platform.

Unlocking Value

- AgeX raised net proceeds of $10 million, valuing AgeX at approximately $68 million post-money. BioTime now owns approximately 85% of the outstanding shares of AgeX. The financing is expected to fund AgeX's general operations and product development well into 2019. BioTime had previously planned to spend more than $5 million annually on these programs and associated operational expenses.

- In September 2017, the BioTime Board of Directors agreed in principle to distribute some or all of the AgeX shares to BioTime shareholders. We are working with investment banks and other financial institutions, the Internal Revenue Service and the Securities and Exchange Commission to finalize and implement the strategy for taking AgeX public, which may include a tax-free distribution.

Patent Portfolio

- During 2017, BioTime was issued 41 new patents to expand and bolster its patent estate, including the patent estate covering *OpRegen*® through 2031. These new patents add to the over 800 issued patents or pending patent applications that BioTime and its subsidiaries have invented or licensed worldwide and address many of BioTime's key programs, including *OpRegen*®, which is in a Phase I/IIa trial for dry-AMD; stroke and orthopedics, which are in early stages of development; and cell culture methods that are applicable across the pluripotent cell platform that enables robust manufacturing processes for many of the products.

- Successful defense of two key patents related to *OpRegen*®. The European Patent Office (EPO), in an opposition proceeding, ruled that two patents related to *OpRegen*® are valid and remain in force as granted.

Non-dilutive Funding

- BioTime was awarded a new grant for 2017 of up to 7.2 million Israeli New Shekels (approximately $2 million) from the Israel Innovation Authority (IIA). The grant provides funding for the continued development of *OpRegen*®, and to date the IIA has provided annual grants totaling approximately $12 million.

- BioTime was awarded a grant of up to $1.56 million from the Small Business Innovation Research program of the National Institutes of Health. The grant provides funding to further develop BioTime's innovative, next generation vision restoration program for more advanced retinal diseases and injuries, which severely impact the quality of life for millions of people with no treatment option

Other Company News

- During 2017, BioTime successfully raised $49 million in gross proceeds from new and previous investors in two underwritten public offering of our common shares.

ADDITIONAL INFORMATION

HyStem®, *Hextend*®, *PureStem*® and *Renevia*® are registered trademarks of BioTime, Inc., and *ReGlyde*™ and *Premvia*™ are trademarks of BioTime, Inc. *ReCyte*™ is a trademark of ReCyte Therapeutics, Inc. *OpRegen*® is a registered trademark of Cell Cure Neurosciences, Ltd., and *GeneCards*® is a registered trademark of Yeda Research and Development Co. Ltd.

In 2017, BioTime was led by the Co-CEO leadership team of Adi Mohanty, who is responsible for human clinical development, product commercialization, corporate and administrative functions and Dr. Michael D. West, one of the world's foremost experts on therapies derived from stem cells, who is responsible for research, product discovery, and preclinical product development.

To efficiently advance product candidates through the clinical trial process, we have historically created operating subsidiaries for each program and product line. Management believes this approach has fostered efficient use of resources and reduced shareholder dilution as compared to strategies commonly deployed by the biotechnology industry in advancing various programs and product lines through development. However, operating our business through multiple subsidiaries and affiliated companies results in certain administrative expenses that we would not incur if all our operations were conducted within BioTime itself. On the other hand, this organizational structure has facilitated our fundraising efforts and has allowed BioTime to develop multiple clinical-stage products, rather than being dependent on a single product program. We, and some of the other members of BioTime, have also received substantial amounts of non-dilutive financial support from government and nonprofit organizations that are seeking, based on rigorous scientific review processes, to identify and accelerate the development of potential breakthroughs in the treatment of various major diseases.

AFFILIATE & SUBSIDIARY OWNERSHIP

The following table shows the companies within BioTime, their respective principal fields of business, our percentage ownership, directly and through subsidiaries, including unconsolidated affiliates as of December 31, 2017, and the country where their principal business is located:

	Field of Business	BioTime Ownership	Country
Public Affiliates [1]:			
OncoCyte Corporation [2]	Cancer diagnostics	46.7%	USA
Asterias Biotherapeutics, Inc. [3]	Therapeutic products derived from pluripotent stem cells, and immunotherapy products. Clinical programs include: AST-OPC1 for spinal cord injury, AST-VAC1 for acute myelogenous leukemia, and AST-VAC2 for non-small cell lung cancer	40.2%	USA
AgeX and its Subsidiaries:			
AgeX Therapeutics, Inc.	*PureStem® progenitor cell lines, brown adipose fat, induced tissue regeneration ("iTR") technology*	85.4%	USA
ReCyte Therapeutics, Inc. [4]	Research and development involved in stem cell-derived endothelial and cardiovascular related progenitor cells for the treatment of vascular disorders and ischemic conditions	94.8%	USA
LifeMap Sciences, Inc. [4]	Biomedical, gene, disease, and stem cell databases and tools	81.7%	USA
Other BioTime Subsidiaries:			
Cell Cure Neurosciences Ltd.	R&D and manufacturing of BioTime's cell replacement platform technology	98.8%[5]	Israel
ES Cell International Pte. Ltd [6]	Research and clinical grade cell lines	100%	Singapore
OrthoCyte Corporation [6]	Research in orthopedic diseases and injuries	99.8%	USA

(1) The term "Public Affiliates" or "Affiliates" used in this Report refers to OncoCyte and Asterias, which are unconsolidated companies of which we are the largest shareholder and are able to exercise significant influence based on our share ownership, including influence over the operating and financial policies of those companies.

(2) See Notes 3 and 4 to our consolidated financial statements included elsewhere in this Report. Beginning February 17, 2017, BioTime deconsolidated OncoCyte and OncoCyte is no longer a subsidiary of BioTime as of that date, but remains an affiliate of BioTime.

(3) Since the deconsolidation of Asterias on May 13, 2016, Asterias is no longer a subsidiary of BioTime but remains an affiliate.

(4) ReCyte Therapeutics and LifeMap Sciences are subsidiaries of AgeX.

(5) Includes shares owned by BioTime and ES Cell International Pte. Ltd.

(6) The operating activities and fields of business listed under these subsidiaries are conducted primarily by BioTime as the parent company.

Our Ownership of Cell Cure

During June and July of 2017 we increased our ownership of Cell Cure by acquiring all of the Cell Cure ordinary shares and Cell Cure convertible promissory notes held by its second largest shareholder, Hadasit Bio-Holdings Ltd., and all of the Cell Cure ordinary shares held by its third largest shareholder, Teva Pharmaceutical Industries, Ltd. As a result of this acquisition, we now own, directly and through a wholly-owned subsidiary, approximately 99% of the outstanding Cell Cure ordinary shares.

Cell Cure has adopted stock option plans under which it may issue up to 125,363 of its ordinary shares to officers, directors, employees, and consultants. As of December 31, 2017, options to purchase 80,792 ordinary shares of common stock were granted and outstanding.

Our Ownership of Asterias – Affiliate

As of February 7, 2018, we owned 40.2% of the outstanding Asterias common stock. Asterias common stock is listed for trading on the NYSE American under the symbol AST. Asterias has adopted an Equity Incentive Plan under which Asterias has reserved 13,500,000 shares of common stock for the grant of stock options, and other equity-based awards to officers, directors, employees, and consultants. As of December 31, 2017, Asterias had outstanding warrants to purchase 2,813,159 shares of Asterias common stock, options to purchase a total of 6,375,828 shares of Asterias common stock and 690,000 restricted stock units. Since the deconsolidation of Asterias on May 13, 2016, Asterias ceased being a consolidated subsidiary but has remained a significant affiliate of BioTime.

Our Ownership of OncoCyte – Affiliate

Beginning February 17, 2017, BioTime deconsolidated OncoCyte and OncoCyte is no longer a consolidated subsidiary of BioTime as of that date, but remains a significant affiliate of BioTime. As of February 7, 2018, we owned 46.7% of the OncoCyte common stock outstanding. OncoCyte common stock is listed for trading on the NYSE American under the symbol OCX. OncoCyte has adopted a stock option plan under which it may issue up to 5,200,000 shares of its common stock to its officers, directors, employees, and consultants. As of December 31, 2017, options to purchase 3,390,287 shares of OncoCyte common stock had been granted.

Our Ownership of OrthoCyte

As of February 22, 2018, we owned 99.8% of the outstanding common stock of OrthoCyte. OrthoCyte has adopted a stock option plan under which it may issue up to 4,000,000 shares of its common stock to officers, directors, employees, and consultants of OrthoCyte and BioTime employees, including officers. As of December 31, 2017, options to purchase 1,249,000 shares of OrthoCyte common stock had been granted.

Our Ownership of AgeX

As of February 22, 2018, we owned 85.4% of the outstanding common stock of AgeX. AgeX has adopted a stock option plan under which it may issue up to 4,000,000 shares of its common stock to officers, directors, employees, and consultants of AgeX and BioTime employees, including officers. As of December 31, 2017, options to purchase 1,239,000 shares of AgeX common stock had been granted.

AgeX has issued warrants to purchase 1,473,600 shares of its common stock that expire the earlier to occur of (i) the third anniversary from the date of issuance, (ii) on or after January 31, 2019, after notice from AgeX, if the AgeX shares are publicly traded and the price of AgeX common stock exceeds $3.75 per share for 20 trading days (on a volume weighted average price basis, as defined), and (iii) a change of control, as defined in warrant agreement.

Our Ownership of ReCyte Therapeutics

As of February 22, 2018, AgeX owned 94.8% of the outstanding common stock of ReCyte Therapeutics, Inc. (“ReCyte Therapeutics”). ReCyte Therapeutics has adopted a stock option plan under which it may issue up to 4,000,000 shares of its common stock to officers, directors, employees, and consultants of ReCyte Therapeutics and BioTime employees, including officers. As of December 31, 2017, options to purchase 1,199,975 shares of ReCyte Therapeutics common stock had been granted.

Our Ownership of LifeMap Sciences

As of February 22, 2018, AgeX owned approximately 82% of the outstanding common stock of LifeMap Sciences, Inc. (“LifeMap Sciences”). LifeMap Sciences has adopted a stock option plan under which it may issue up to 2,342,269 shares of its common stock to officers, directors, employees, and consultants of LifeMap Sciences and BioTime employees, including officers. As of December 31, 2017, options to purchase 904,571 shares of LifeMap Sciences common stock had been granted.

PATENTS AND TRADE SECRETS

We rely primarily on patents and contractual obligations with employees and third parties to protect our proprietary rights. We have sought, and intend to continue to seek, appropriate patent protection for important and strategic components of our proprietary technologies by filing patent applications in the U.S. and certain foreign countries. There are no assurances that any of our intellectual property rights will guarantee protection or market exclusivity for our products and product candidates. We also use license agreements both to access technologies developed by other companies and universities and to convey certain intellectual property rights to others. Our financial success will be dependent, in part, on our ability to obtain commercially valuable patent claims, to protect and enforce our intellectual property rights, and to operate without infringing upon the proprietary rights of others if we are unable to obtain enabling licenses.

As of February 28, 2018, we owned or controlled or licensed directly or through our subsidiaries approximately 800 patents and pending patent applications worldwide including more than 170 issued or pending U.S. patents or patent applications. This number also includes the over 140 patents and applications licensed from WARF.

OpRegen®

We and our subsidiary, Cell Cure, have issued patents that will provide protection to *OpRegen*® until about 2033, and pending applications that if issued, will provide protection to *OpRegen*® until December 2038.

Cell Cure was a party to two pending opposition proceedings in the European Patent Office (EPO) involving EP Patent Numbers 2147094 (issued 08-Oct-2014) and 2554661 (issued 19-Nov-2014), both entitled, “Stem Cell-Derived Retinal Pigment Epithelial Cells”. The Oral Proceedings took place on March 16, 2017 and March 17, 2017, respectively. Both patents were upheld by the EPO. The decisions were both appealed and the detailed grounds for appeal were due on September 9, 2017 and September 11, 2017, respectively, however, both appeals were withdrawn prior to those dates and the patents will be issued as amended in the opposition proceedings. Both patents relate to our *OpRegen*® product and provide protection until April 2028. There are additional patent applications pending that if issued will provide further protection for *OpRegen*®.

Renevia®

We have patent protection for *Renevia*® until about August 2027, and pending applications that if issued, will provide protection to *Renevia*® until June 2038.

Asterias Patents

The patent positions for Asterias’ core programs are summarized below.

Neural cells: This portfolio is related to Asterias’ AST-OPC1 product. The patent rights relevant to neural cells, such as oligodendrocyte progenitor cells, include various patent families acquired from Geron that are directed to the differentiation of pluripotent stem cells (including hES cells) into various neural cell types, as well as various culture and purification methods. These patent rights also include rights licensed from the Regents of the University of California. There are issued patents in the United States, Australia, Canada, Europe, Japan, China, Hong Kong, India, Korea, Singapore and Israel. Additionally, there are five new pending patent families owned by us directed to improved methods of producing oligodendrocyte progenitor cells, oligodendrocyte progenitor cell compositions and methods of treatment of spinal cord injury and stroke using oligodendrocyte progenitor cells. The stroke family is jointly owned with the Regents of the University of California; the other four new pending families are solely owned by Asterias. The expiration dates of the patents acquired from Geron and in-licensed from the Regents of the University of California will be within 2021 to 2030. The potential expiry dates of the four new patent families with applications pending will be within 2036 to 2038. The commercial success of AST-OPC1 product depends, in part, upon the ability of Asterias to exclude competition for this product with the existing patent portfolio, regulatory exclusivity, or a combination of both.

Dendritic cells: This portfolio is related to Asterias’AST-VAC1 and AST-VAC2 products. The patent rights relevant to dendritic cells include various patent families acquired by Asterias from Geron or in-licensed from third parties that are directed to the differentiation of pluripotent stem cells (including hES cells) into hematopoietic progenitor cells and immature and mature dendritic cells. In addition, these patent rights include a patent family with claims directed to immunogenic compositions comprising antigen-presenting dendritic cells and methods of eliciting an anti-telomerase immune response in a subject by administering to the subject such compositions. There are issued patents in the United States, Australia, Europe, Canada, China, Hong Kong, Japan, Korea, Israel and Singapore. The expiration dates of the patents acquired from Geron and in-licensed to us range from 2019 to 2029. Additionally, there is a new pending patent family owned by Asterias with claims directed to immunotherapeutic compositions comprising immunogenic peptides and methods of eliciting a cellular mediated immune response in a subject, with a provisional patent application filed in 2017. The potential expiry date of the new patent family with a pending provisional application will be in 2038. The commercial success of AST-VAC1 and AST-VAC2 products depends, in part, upon the ability of Asterias to exclude competition in these products with this patent portfolio, regulatory exclusivity, or a combination of both.

In addition, Asterias has issued patents in the Unites States and various other jurisdictions for producing cardiomyocytes, pancreatic islet cells, hepatocytes, chondrocytes, and osteoblasts. The expiration dates of these patents range from 2020 to 2032.

Patents Used by OncoCyte

OncoCyte's diagnostic patent portfolio includes 6 patent families owned by OncoCyte with claims directed to compositions of matter and methods useful for detection and treatment of breast and bladder, cancers using specific biomarkers or a panel of specific biomarkers. Patents are pending in various jurisdictions, including the United States, Europe, Australia, Canada, China, Hong Kong, Japan and Republic of Korea, with projected expiration dates ranging from 2032 to 2037. Additionally, they have one issued patent in Australia, with claims directed to a method of detecting breast cancer; and one accepted patent application in China, with claims directed to a method of detecting bladder cancer. The issued patents will expire in 2032.

OncoCyte has also obtained an exclusive license from Wistar to certain pending patent applications in the field of molecular diagnostics for lung cancer. The pending claims are directed to compositions of matter and methods useful for detection of lung cancer using specific biomarkers or a panel of specific biomarkers, with projected expiration dates in 2036 and 2037. Additionally, we have obtained from Wistar an exclusive option under which we may obtain licenses to additional issued and pending patents in the field of molecular diagnostics for lung cancer. Patents covered by the exclusive option have issued in the United States, Europe, and India and patent applications are pending in the United States, Canada and India. Those patents are projected to expire in 2028 - 2030.

Patents Used in Our Plasma Volume Expander Business

We currently hold three issued U. S. patents with methods-of-use claims covering *Hextend*®. Our patents in the U.S., which include claims directed to methods-of-use of *Hextend*®, are expected to remain in force until 2019. Patents covering certain proprietary solutions have also issued in several countries and remain in force in Canada, China, Israel, Japan, New Zealand, and Taiwan.

General Risks Related to Obtaining and Enforcing Patent Protection

There is a risk that any patent applications that we file and any patents that we hold or later obtain could be challenged by third parties and be declared invalid or infringing on third party claims. Litigation, interferences, oppositions, inter partes reviews or other proceedings are, have been and may in the future be necessary in some instances to determine the validity and scope of certain of our proprietary rights, and in other instances to determine the validity, scope or non-infringement of certain patent rights claimed by third parties to be pertinent to the manufacture, use or sale of our products. We may also face challenges to our patent and regulatory protections covering our products by third parties, including manufacturers of generics and biosimilars that may choose to launch or attempt to launch their products before the expiration of our patent or regulatory exclusivity. Litigation, interference, oppositions, inter partes reviews, administrative challenges or other similar types of proceedings are unpredictable and may be protracted, expensive and distracting to management. The outcome of such proceedings could adversely affect the validity and scope of our patent or other proprietary rights, hinder our ability to manufacture and market our products, require us to seek a license for the infringed product or technology or result in the assessment of significant monetary damages against us that may exceed any amounts that we may accrue on our financial statements as a reserve for contingent liabilities. An adverse determination in a judicial or administrative proceeding or a failure to obtain necessary licenses could prevent us from manufacturing or selling our products. Furthermore, payments under any licenses that we are able to obtain would reduce our profits derived from the covered products and services.

The enforcement of patent rights often requires litigation against third-party infringers, and such litigation can be costly to pursue. Even if we succeed in having new patents issued or in defending any challenge to issued patents, there is no assurance that our patents will be comprehensive enough to provide us with meaningful patent protection against our competitors.

In addition to relying on patents, we rely on trade secrets, know-how, and continuing technological advancement to maintain our competitive position. We have entered into intellectual property, invention, and non-disclosure agreements with our employees, and it is our practice to enter into confidentiality agreements with our consultants. There can be no assurance, however, that these measures will prevent the unauthorized disclosure or use of our trade secrets and know-how, or that others may not independently develop similar trade secrets and know-how or obtain access to our trade secrets, know-how, or proprietary technology.

EMPLOYEES

As of December 31, 2017, we employed 95 employees, of which 46 are BioTime employees and 49 are employees of our subsidiaries, including foreign subsidiaries. Ninety-two employees are employed on a full-time basis and three persons are employed on a part-time basis. Twenty-three full-time employees hold Ph.D. degrees in one or more fields of science. None of our employees are covered by a collective bargaining agreement.

MANUFACTURING

Facilities Required—Cell Products

We lease approximately 30,795 square feet of rentable space in two buildings located in an office park setting in Alameda, California. Our subsidiaries or affiliates, OncoCyte, OrthoCyte, AgeX and ReCyte Therapeutics are also conducting their operations at our Alameda facility.

Cell Cure leases approximately 2,060 square meters (approximately 22,200 square feet) of office, laboratory, warehousing and cGMP production space located in Jerusalem, Israel.

Facilities Required—HyStem® Hydrogel Products

We hold a California Device Manufacturing License and has registered with the FDA as a Device Manufacturer in support of our *Premvia*® product. We have ISO 13485:2003 certification for the design, development, manufacture, and distribution of hydrogels for therapeutic delivery applications. While BioTime holds these certifications, licenses, and registrations, all product manufacturing occurs at contract facilities located in Pennsylvania and California. Our contractors have the necessary registrations and certifications to perform this manufacturing. Our current suppliers have the capacity to meet current and commercial requirements. We maintain laboratories for product, process, and analytical development work for *HyStem*® hydrogel products at our Alameda facility.

Facilities Required—Laboratory Diagnostic Tests

OncoCyte constructed a CLIA compliant laboratory at our Alameda facility for the performance of any cancer diagnostic tests that it may successfully develop and commercialize. OncoCyte will be required to hold certain federal, state and local licenses, certifications and permits to operate its diagnostic test laboratory, including certification, under the laws of the states from which it receives blood samples for testing, in addition to certification by California where the diagnostic laboratory is located. See "Government Regulation — *Clinical Laboratory Improvement Amendments of 1988 and State Regulation.*"

Facilities Required—Plasma Volume Expanders

Hospira, Inc., a subsidiary of Pfizer, Inc., manufactures our synthetic blood volume expander solution *Hextend*® for use in the United States and CJ Healthcare manufactures *Hextend*® for use in South Korea. If Hospira and CJ Health were to discontinue manufacturing *Hextend*®, we would need to find a replacement manufacturer willing to manufacture *Hextend*® us as we do not have facilities to manufacture *Hextend*® in commercial quantities, or under cGMP.

Raw Materials— Cell Products and HyStem® Products

Most of the ingredients in the *HyStem*® products we are developing are readily obtainable from multiple sources. Two critical ingredients, gelatin and sodium hyaluronate, are readily available from multiple sources but would require significant testing in order to qualify new vendors as sources of those ingredients for our products.

Raw Materials—Plasma Volume Expanders

Although most ingredients in the products we are developing are readily obtainable from multiple sources, we know of only a few manufacturers of the hydroxyethyl starches that serve as the primary drug substance in *Hextend*®. Hospira and CJ Health presently have a source of supply of the hydroxyethyl starch used in *Hextend*® and have agreed to maintain a supply sufficient to meet market demand for *Hextend*® in the countries in which they market the product. We believe that we will be able to obtain a sufficient supply of starch for our needs in the foreseeable future, although we do not have supply agreements in place. If for any reason a sufficient supply of hydroxyethyl starch could not be obtained, a licensee would have to acquire or obtain by contract the use of a manufacturing facility and the technology to produce the hydroxyethyl starch according to cGMP if the licensee were to elect to continue manufacturing *Hextend*®.

LICENSED TECHNOLOGY AND PRODUCT DEVELOPMENT AGREEMENTS

BioTime and other members of BioTime have obtained the right to use technology that we believe has great potential in our product development efforts, and that may be useful to other companies that are engaged in the research and development of products for human therapeutic and diagnostic use.

Wisconsin Alumni Research Foundation—Research Products

We have entered into a Commercial License and Option Agreement with Wisconsin Alumni Research Foundation ("WARF"). The WARF license permits us and our subsidiaries to use certain patented and patent pending technology belonging to WARF, as well as certain stem cell materials, for research and development purposes, and for the production and marketing of "research products" and "related products." "Research products" are products used as research tools, including in drug discovery and development. "Related products" are products other than research products, diagnostic products, or therapeutic products. "Diagnostic products" are products or services used in the diagnosis, prognosis, screening or detection of disease in humans. "Therapeutic products" are products or services used in the treatment of disease in humans.

We will pay WARF a 4% royalty on the sale of research products and services and 2% on the sale of related products under the WARF license. The royalty rate is subject to certain reductions if we also become obligated to pay royalties to a third party to sell a product. We have certain options to negotiate with WARF to obtain a license to manufacture and market therapeutic products, excluding products in certain fields of use. The WARF license shall remain in effect until the last licensed patent expires, however, we may terminate prior to the expiration by giving WARF at least 90 days written notice, and WARF has industry standard termination rights.

PureStem® Technology

ReCyte Therapeutics entered into a license agreement with Advanced Cell Technology, Inc., which later became Ocata Therapeutics, Inc. ("Ocata") that was subsequently assigned to us and under which we acquired exclusive world-wide rights to use Ocata's technology for methods to accelerate the isolation of novel cell strains from pluripotent stem cells. The licensed rights include pending patent applications, know-how, and existing cells and cell lines developed using the technology.

The licensed technology is designed to provide a large-scale and reproducible method of isolating clonally purified human embryonic progenitor cells or hEPCs, many of which may be capable of extended propagation *in vitro*. Initial testing suggests that the technology may be used to isolate at least 200 distinct clones that contain many previously uncharacterized cell types derived from all germ layers that display diverse embryo- and site-specific homeobox gene expression. Despite the expression of many oncofetal genes, none of the hEPC tested led to tumor formation when transplanted into immunocompromised mice. The cells studied appear to have a finite replicative lifespan but have longer telomeres than most fetal- or adult-derived cells, which may facilitate their use in the manufacture of purified lineages for research and human therapy. Information concerning the technology was published in the May 2008 edition of the journal *Regenerative Medicine*.

We have the right to use the licensed technology and cell lines for research purposes and for the development of therapeutic and diagnostic products for human and veterinary use, and we also have the right to grant sublicenses. We paid Ocata a $250,000 license fee as well as an 8% royalty on sales of products, services, and processes that utilize the licensed technology. Once a total of $1.0 million of royalties has been paid, no further royalties will be due.

Ocata may reacquire royalty-free, worldwide licenses to use the technology for RPE cells, hemangioblasts, and myocardial cells, on an exclusive basis, and for hepatocytes, on a non-exclusive basis, for human therapeutic use. Ocata will pay us $5,000 for each license that it elects to reacquire.

The term of the licenses from Ocata expire on the later of July 9, 2028 or the expiration of the last to expire of the licensed patents. The latest expiration date of patents issued is October 12, 2026, but the expiration date of the licenses could be extended if the patent expiration dates are extended. Ocata may terminate the license agreement if we commit a breach or default in the performance of our obligations under the agreement and fail to cure the breach or default within the permitted cure periods. BioTime has the right to terminate the license agreement at any time by giving Ocata three months' prior notice and paying all amounts due to Ocata through the effective date of the termination.

HyStem® Hydrogel Technology

We have acquired an exclusive worldwide license from the University of Utah to use certain patents in the production and sale of hydrogel products, including our *HyStem*® products, excluding certain veterinary and animal health uses. Our licensed field of use includes, but is not limited to, all human pharmaceutical and medical device applications, all tissue engineering and regenerative medicine uses, and all research applications.

Under the License Agreement, we will pay a 3% royalty on sales of products and services performed that utilize the licensed patents. We are obligated to pay minimum royalties to the extent that actual royalties on products sales and services utilizing the patents are less than the minimum royalty amount. The minimum royalty amounts are $30,000 per annum during the term of the License Agreement. We will also pay the University of Utah 30% of any sublicense fees or royalties received under any sublicense of the licensed patents.

We will also pay a $225,000 milestone fee within six months after the first sale of a “tissue engineered product” that utilizes a licensed patent. A tissue engineered product is defined as living human tissues or cells on a polymer platform, created at a place other than the point-of-care facility, for transplantation into a human patient.

We agreed to pay an additional license fee for the additional rights licensed to us during August 2012, and the costs of filing, prosecuting, enforcing and maintaining the patents exclusively licensed to us, and a portion of those costs for patents that have been licensed to a third party for a different field of use.

Commencing in August 2017, we may, under certain circumstances, be obligated to sublicense to one or more third parties, on commercially reasonable terms to be negotiated between us and each prospective sublicensee, or re-grant to the University of Utah, rights to use the licensed patents for products and services outside the general industry in which we or any of our affiliates or sublicensees is then developing or commercializing, or has plans to develop or commercialize, a product using the licensed technology.

Research and Development Agreement and License Agreement with Heraeus

OrthoCyte has entered into a License Agreement and a Research and Development Agreement with Heraeus for the development of innovative bone grafting therapies based on the use of our proprietary *PureStem*® human embryonic progenitor cell technology. Pursuant to the terms of the Research and Development Agreement, OrthoCyte will carry out a research and development project aimed at producing a cell therapy bone grafting product, using *PureStem*® technology and either *HyStem*® scaffold technology for delivery of bioactives, referred to as the OrthoCyte Technology, or scaffold technology owned by Heraeus or licensed to it by third parties, referred to as the Heraeus Technology. The OrthoCyte Technology includes technology owned by it or BioTime or licensed from third parties.

Under the terms of the Research and Development Agreement, Heraeus agreed to make certain payments to OrthoCyte upon achieving certain milestones, and will reimburse OrthoCyte for all costs and expenses incurred in connection with the project. The Research and Development Agreement is effective until the completion and payment of the last milestone set forth in the project plan, but may be terminated by either party immediately upon written notice to the other party if the other party fails to remedy any material breach of the agreement within 90 days following receipt of written notice of such breach. Heraeus had additional industry standard termination rights. OrthoCyte has also licensed the OrthoCyte Technology to Heraeus, and Heraeus has licensed the Heraeus Technology to OrthoCyte. The license grant by OrthoCyte to Heraeus is exclusive and worldwide in the field of bone grafting for all osteoskelton diseases and injuries, except oral maxilla-facial. The license grant by Heraeus to OrthoCyte is exclusive and worldwide in all other fields. Pursuant to the License Agreement, each of Heraeus and OrthoCyte will pay certain specified royalties to each other based on their respective net sales of the product developed in the research and development project. The License Agreement contains customary confidentiality obligations, and representations and warranties, and termination provisions.

Hadasit Research and License Agreement

Cell Cure has a Second Amended and Restated License Agreement (the “License Agreement”) with Hadasit Medical Research Services and Development Ltd. (“Hadasit”), the commercial arm and a wholly-owned subsidiary of Hadassah Medical Organization. Pursuant to the License Agreement, Hadasit granted Cell Cure an exclusive, worldwide, royalty bearing license (with the right to grant sublicenses) in its intellectual property portfolio of materials and technology related to human stem cell derived photoreceptor cells and retinal pigment epithelial cells (the “Licensed IP”), to use, commercialize and exploit any part thereof, in any manner whatsoever in the fields of the development and exploitation of (i) human stem cell derived photoreceptor cells, solely for use in cell therapy for the diagnosis, amelioration, prevention and treatment of eye disorders, and (ii) human stem cell derived retinal pigment epithelial cells, solely for use in cell therapy for the diagnosis, amelioration, prevention and treatment of eye disorders.

As consideration for the Licensed IP, Cell Cure will pay a small one-time lump sum payment, a royalty in the mid-single digits of net sales from sales of Licensed IP by any invoicing entity, and a royalty of between 15 and 25 percent of sublicensing receipts. In addition, Cell Cure will pay Hadasit an annual minimal non-refundable royalty, which will become due and payable the first January 1 following the completion of services to Cell Cure by a research laboratory.

Cell Cure agreed to pay Hadasit non-refundable milestone payments upon the recruitment of the first patient for the first Phase IIB clinical trial, upon the enrollment of the first patient in the first Phase III clinical trials, upon delivery of the report for the first Phase III clinical trials, upon the receipt of an NDA or marketing approval in the European Union, whichever is the first to occur, and upon the first commercial sale in the United States or European Union, whichever is the first to occur. Such milestones, in the aggregate, may be up to $3.5 million. As of December 31, 2017, Cell Cure had not accrued any milestone payments under the License Agreement.

The License Agreement terminates upon the expiration of Cell Cure's obligation to pay royalties for all licensed products, unless earlier terminated. In addition, the License Agreement may be terminated by (i) Hadasit if, among other reasons, Cell Cure fails to continue the clinical development of the Licensed IP or fails to take actions to commercialize or sell the Licensed IP over any consecutive 12 month period, and (ii) by either party for (a) a material breach which remains uncured following a cure period, or (b) the granting of a winding-up order in respect of the other party, or upon an order being granted against the other party for the appointment of a receiver or a liquidator in respect of a substantial portion of such other party's assets. The License Agreement also contains mutual confidentiality obligations of Cell Cure and Hadasit, and indemnification obligations of Cell Cure.

AgeX License Agreement

Concurrently with the contribution of assets to AgeX under an Asset Contribution Agreement, BioTime and AgeX entered into a License and Sublicense Agreements pursuant to which BioTime has licensed to AgeX, with rights to sublicense, certain intellectual property, including patents and patent applications and know-how for use in the development, manufacture and commercialization of products or services for the prevention, treatment, amelioration, diagnosis or monitoring of all human and non-human animal diseases and conditions except for the field of medical products, devices and services for the reserved BioTime fields of orthopedic, ophthalmic and medical aesthetic uses. In addition, BioTime retained an option right to license, on terms to be negotiated, certain patents in research, development, manufacturing and commercialization of treatments in the reserved BioTime fields. The licensed patents and know-how relate generally to (a) BioTime's *PureStem*® human embryonic progenitor cell lines, and (b) telomere length and DNA quality control analysis in pluripotent stem cells.

The BioTime patent rights licensed to AgeX are exclusive and worldwide except for existing third-party licenses, and for medical products, devices, and services related to tendon. AgeX additionally received an option to license certain BioTime retained patent rights outside of orthopedic indications unless a license grant would compete with a BioTime program or products in the retained BioTime field.

BioTime and a subsidiary have also agreed to license or sublicense to AgeX certain additional patents and patent rights and know-how relating to BioTime *HyStem*® hydrogel technology, human embryonic progenitor cell technology, and human pluripotent stem cell lines and technology for use outside the fields reserved to BioTime or in the case of certain sublicense rights in fields previously licensed to third parties.

Asterias Cross-License Agreement

Under the terms of a Cross-License Agreement (the "Cross-License") entered into by Asterias, BioTime, and BioTime's subsidiary ES Cell International Pte Ltd ("ESI"), BioTime and ESI received a fully-paid, non-royalty-bearing, world-wide, non-exclusive, sub-licensable license in, to, and under the certain Asterias patents and related patent rights for all purposes in the BioTime/ESI Licensed Field during the term of the license. The BioTime/ESI Licensed Field includes all fields of use except any and all applications (a) to treat disorders of the nervous system, (b) utilizing the immune system to prevent, treat, or cure cancer, and (c) involving the use of cells comprising, derived from, or manufactured using, human embryonic stem cells or human induced pluripotent stem cells for in vitro assay applications, including but not limited to drug discovery and development, drug monitoring, drug toxicology testing, and consumer products testing. BioTime has sublicensed its rights to certain subsidiaries.

Under the terms of the Cross-License, Asterias received a fully-paid, non-royalty-bearing, world-wide, non-exclusive, sub-licensable license under certain BioTime patents and related patent rights and ESI patents and related patent rights specified in the Cross-License, for all purposes in the Asterias Licensed Field during the term of the license. The Asterias Licensed Field includes all therapeutic applications of use for certain BioTime patents and ESI patents except all therapeutic applications of use involving pluripotent stem cell-derived cells of the following lineages: (a) bone and orthopedic soft tissues, including but not limited to ligament, tendon, meniscus, cartilage, and intervertebral disc; (b) vascular endothelium and perivascular cells including vascular smooth muscle and vascular pericytes; (c) adipose tissue; and (d) retinal pigment epithelium. The Asterias Licensed Field also includes all applications of use for certain other BioTime patents involving live human pluripotent stem cell-derived cell therapies directed to the neural spinal cord (excluding cartilage and bone of the spine) and the myocardium; and also live human pluripotent stem cell-derived glial cell therapies directed to the central nervous system.

The term of the Cross-License shall expire on the expiration of the last claim within the Asterias patents rights or BioTime patent rights, as applicable, unless terminated earlier for a material breach by a party.

GOVERNMENT REGULATION

Government authorities at the federal, state and local level, and in other countries, extensively regulate among other things, the development, testing, manufacture, quality, approval, safety, efficacy, distribution, labeling, packaging, storage, record keeping, marketing, import/export and promotion of drugs, biologics, and medical devices. Laboratories performing diagnostic tests such as those being developed by OncoCyte are also subject to regulation at both the federal and state level. Authorities also heavily regulate many of these activities for human cells, tissues, and cellular and tissue-based products or HCT/Ps.

FDA and Foreign Regulation of Therapeutic Products

The FDA and foreign regulatory authorities will regulate our proposed products as drugs, biologicals, or medical devices, depending upon such factors as the use to which the product will be put, the chemical composition, and the interaction of the product with the human body. In the United States, the FDA regulates drugs and biologicals under the Federal Food, Drug and Cosmetic Act, or FDCA, the Public Health Service Act, or PHSA, and implementing regulations. In addition, establishments that manufacture human cells, tissues, and HCT/Ps are subject to additional registration and listing requirements, including current good tissue practice regulations. Certain cell therapy proposed products will be reviewed by the FDA staff in its Center for Biologics Evaluation and Research (“CBER”) Office of Cellular, Tissue and Gene Therapies.

Our domestic human drug and biological products will be subject to rigorous FDA review and approval procedures. After testing in animals to evaluate the potential efficacy and safety of the product candidate, an investigational new drug (“IND”) submission must be made to the FDA to obtain authorization for human testing. Extensive clinical testing, which is generally done in three phases, must then be undertaken at a hospital or medical center to demonstrate optimal use, safety, and efficacy of each product in humans. Each clinical study is conducted under the auspices of an independent Institutional Review Board (“IRB”). The IRB will consider, among other things, ethical factors, the safety of human subjects, and the possible liability of the institution.

Clinical trials are generally conducted in three “phases.” Phase I clinical trials are conducted in a small number of healthy volunteers or volunteers with the target disease or condition to assess safety. Phase II clinical trials are conducted with groups of patients afflicted with the target disease or condition in order to determine preliminary efficacy, optimal dosages and expanded evidence of safety. In some cases, an initial trial is conducted in diseased patients to assess both preliminary efficacy and preliminary safety, in which case it is referred to as a Phase I/II trial. Phase III trials are large-scale, multi-center, comparative trials and are conducted with patients afflicted with the target disease or condition in order to provide enough data to demonstrate the efficacy and safety required by the FDA. The FDA closely monitors the progress of each of the three phases of clinical testing and may, at its discretion, re-evaluate, alter, suspend, or terminate the clinical trial based upon the data which have been accumulated to that point and its assessment of the risk/benefit ratio to the intended patient population. All adverse events must be reported to the FDA. Monitoring of all aspects of the study to minimize risks is a continuing process. The time and expense required to perform this clinical testing can far exceed the time and expense of the research and development initially required to create the product.

No action can be taken to market any therapeutic product in the U.S. until an appropriate New Drug Application (“NDA”) or Biologics License Application (BLA) has been approved by the FDA. Submission of the application is not a guarantee that the FDA will find it complete and accept it for filing. If an application is accepted for filing, following the FDA’s review, the FDA may grant marketing approval, request additional information or deny the application if it determines that the application does not provide an adequate basis for approval. FDA regulations also restrict the export of therapeutic products for clinical use prior to FDA approval. To date, the FDA has not granted marketing approval to any pluripotent stem-based therapeutic products and it is possible that the FDA or foreign regulatory agencies may subject our product candidates to additional or more stringent review than drugs or biologicals derived from other technologies.

The FDA offers several programs to expedite development of products that treat serious or life-threatening illnesses and that provide meaningful therapeutic benefits to patients over existing treatments. A product may be eligible for breakthrough therapy designation if it treats a serious or life-threatening disease or condition and preliminary clinical evidence indicates it may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints. In December 2016, in the 21st Century Cures Act adopted a new designation of Regenerative Medicine Advanced Therapy Designation. Under the 21st Century Cures Act, a drug is eligible for designation as a regenerative medicine advanced therapy ("RMAT," formerly known as "Regenerative Advanced Therapy") if: the drug is a regenerative medicine therapy, which is defined as a cell therapy, therapeutic tissue engineering product, human cell and tissue product, or any combination product using such therapies or products, except for those regulated solely under certain other sections; the drug is intended to treat, modify, reverse, or cure a serious or life-threatening disease or condition; and preliminary clinical evidence indicates that the drug has the potential to address unmet medical needs for such disease or condition. Some of our current and future products may be eligible for RMAT designation. RMAT designation allows for similar benefits as the breakthrough therapy designation. There is no assurance that the FDA will grant breakthrough therapy, accelerated approval or RMAT status to any of our product candidates.

Certain Medical Devices

Obtaining regulatory approval of *Renevia*® or a similar implantable matrix for tissue transplant or stem cell therapy in Europe will require the preparation of a design dossier containing details on the product manufacturing and production methods, analytical controls to assure that the product meets its release specification, data from analytical assay and process validations, ISO 10993 biocompatibility testing, as well as pre-clinical and clinical safety and efficacy data. Completion of the manufacturing, analytical, biocompatibility, and clinical trials represents a majority of the expenses associated with the regulatory application process in Europe. The procedures for obtaining FDA approval to sell products in the U.S. are likely to be more stringent, and the cost greater, than would be the case in an application for approval in Europe.

Combination Products

If we develop any products that are used with medical devices, they may be considered combination products, which are defined by the FDA to include products comprised of two or more regulated components or parts such as a biologic and a device. For example, our *HyStem*® hydrogel products such as *Renevia*® may be used to administer one or more pluripotent stem cell-based therapy products. When regulated independently, biologics and devices each have their own regulatory requirements. However, the regulatory requirements for a combination product comprised of a biologic administered with a delivery device can be more complex, because in addition to the individual regulatory requirements for each component, additional combination product regulatory requirements may apply. There is an Office of Combination Products at the FDA that coordinates the review of such products and determines the primary mode of action of a combination product. The definition and regulatory requirements for combination products may differ significantly among countries in which we may seek approval of our product candidates.

FDA Regulation of Manufacturing

The FDA regulates the manufacturing process of pharmaceutical products, human tissue and cell products, and medical devices, requiring that they be produced in compliance with cGMP. See "Manufacturing." The FDA regulates and inspects equipment, facilities, laboratories and processes used in the manufacturing and testing of products prior to providing approval to market products. If after receiving approval from the FDA, a material change is made to manufacturing equipment or to the location or manufacturing process, additional regulatory review may be required. The FDA also conducts regular, periodic visits to re-inspect the equipment, facilities, laboratories and processes of manufacturers following an initial approval. If, as a result of those inspections, the FDA determines that that equipment, facilities, laboratories or processes do not comply with applicable FDA regulations and conditions of product approval, the FDA may seek civil, criminal or administrative sanctions and/or remedies against the manufacturer, including suspension of manufacturing operations. Issues pertaining to manufacturing equipment, facilities or processes may also delay the approval of new products undergoing FDA review.

FDA Regulation of Advertising and Product Promotion

The FDA also regulates the content of advertisements used to market pharmaceutical and biological products. Claims made in advertisements concerning the safety and efficacy of a product, or any advantages of a product over another product, must be supported by clinical data filed as part of an NDA, a BLA, or a pre-market notification or pre-market approval application for a medical device ("PMA"), or an amendment to an NDA, a BLA, or a pre-market notification or PMA, and must be consistent with the FDA approved labeling and dosage information for that product.

Foreign Regulation

Sales of pharmaceutical products outside the U.S. are subject to foreign regulatory requirements that vary widely from country to country. Even if FDA approval has been obtained, approval of a product by comparable regulatory authorities of foreign countries must be obtained prior to the commencement of marketing the product in those countries. The time required to obtain such approval may be longer or shorter than that required for FDA approval.

Federal Funding of Research

The United States government and its agencies have until relatively recently refused to fund research which involves the use of human embryonic tissue. President Bush issued Executive Orders on August 9, 2001 and June 20, 2007 that permitted federal funding of research on hES cells using only the limited number of hES cell lines that had already been created as of August 9, 2001. On March 9, 2009, President Obama issued an Executive Order rescinding President Bush's August 9, 2001 and June 20, 2007 Executive Orders. President Obama's Executive Order also instructed the NIH to review existing guidance on human stem cell research and to issue new guidance on the use of hES cells in federally funded research, consistent with President's new Executive Order and existing law. The NIH has adopted new guidelines that went into effect July 7, 2009. The central focus of the new guidelines is to assure that hES cells used in federally funded research were derived from human embryos that were created for reproductive purposes, were no longer needed for this purpose, and were voluntarily donated for research purposes with the informed written consent of the donors. Those hES cells that were derived from embryos created for research purposes rather than reproductive purposes, and other hES cells that were not derived in compliance with the guidelines, are not eligible for use in federally funded research.

In addition to President Obama's Executive Order, a bipartisan bill has been introduced in the U.S. Senate that would allow Federal funding of hES research. The Senate bill is identical to one that was previously approved by both Houses of Congress but vetoed by President Bush. The Senate Bill provides that hES cells will be eligible for use in research conducted or supported by federal funding if the cells meet each of the following guidelines: (1) the stem cells were derived from human embryos that have been donated from IVF clinics, were created for the purposes of fertility treatment, and were in excess of the clinical need of the individuals seeking such treatment, (2) prior to the consideration of embryo donation and through consultation with the individuals seeking fertility treatment, it was determined that the embryos would never be implanted in a woman and would otherwise be discarded, and (3) the individuals seeking fertility treatment donated the embryos with written informed consent and without receiving any financial or other inducements to make the donation. The Senate Bill authorizes the NIH to adopt further guidelines consistent with the legislation.

California State Regulations

The state of California has adopted legislation and regulations that require institutions that conduct stem cell research to notify, and in certain cases obtain approval from, a Stem Cell Research Oversight Committee ("SCRO Committee") before conducting the research. Under certain California regulations, all hES cell lines that will be used in our research must be acceptably derived.

We also comply with certain California regulations that require certain records to be maintained with respect to stem cell research and the materials used.

We have formed a SCRO Committee which reviews each of BioTime's projects that involve the use of pluripotent stem cells. The committee reviews and confirms that we are using only hES cell lines that have been acceptably derived and that the research conducted using these cells lines is both scientifically and ethically justified under existing California regulations. The *OpRegen*® program has been reviewed by the SCRO Committee and we believe that we comply with applicable federal and state guidelines. The hES cell lines that we use are all on the National Institutes of Health ("NIH") registry of lines that have been reviewed and meet standards for federal funding grants.

Regulation of Diagnostic Tests

Clinical Laboratory Improvement Amendments of 1988 and State Regulation

As a provider of laboratory testing on human specimens for the purpose of disease diagnosis, prevention, or treatment, OncoCyte is required to hold certain federal, state and local licenses, certifications and permits to conduct its business. In 1988, Congress enacted the Clinical Laboratory Improvement Amendments of 1988, ("CLIA"), which established quality standards for all laboratories providing testing to ensure the accuracy, reliability, and timeliness of patient test results regardless of where the test was performed. OncoCyte's laboratory has obtained a CLIA certificate of accreditation and is currently licensed in California. OncoCyte will be required to meet laboratory licensing and other requirements under laws of additional states in which it will operate or from which OncoCyte will receive blood samples for testing. OncoCyte will be subject to regular surveys and inspections to assess compliance with applicable regulatory standards. If OncoCyte's CLIA laboratory were to fall out of compliance with California standards, the California Department of Health Services ("DHS") may suspend, restrict or revoke the license to operate the laboratory, assess substantial civil money penalties, or impose specific corrective action plans.

FDA Regulation of Diagnostic Tests

OncoCyte's diagnostic tests will likely be classified as laboratory diagnostic tests ("LDTs"), and consequently be governed under the CLIA regulations, as administered by The Centers for Medicare and Medicaid Services ("CMS"), as well as by applicable state laws. Historically, the FDA has exercised enforcement restraint with respect to most LDTs and has not required laboratories that offer LDTs to comply with FDA requirements for medical devices, such as registration, device listing, quality systems regulations, premarket clearance or premarket approval, and post-market controls. In recent years, however, the FDA has stated it intends to end its policy of enforcement restraint and begin regulating certain LDTs as medical devices. On October 3, 2014, the FDA issued two draft guidance documents, entitled "Framework for Regulatory Oversight of Laboratory Developed Tests (LDTs)" and "FDA Notification and Medical Device Reporting for Laboratory Developed Tests (LDTs)", respectively, that set forth a proposed risk-based regulatory framework that would apply varying levels of FDA oversight to LDTs. The FDA has indicated that it does not intend to modify its policy of enforcement restraint until the draft guidance documents are finalized. It is unclear at this time when, or if, the draft guidance documents will be finalized, and even then, the new regulatory requirements are proposed to be phased-in consistent with the schedule set forth in the guidance, which may happen in as little as 12 months after the draft guidance is finalized for certain high-priority LDTs. Nevertheless, the FDA may decide to regulate certain LDTs on a case-by-case basis at any time.

On January 13, 2017, the FDA issued a Discussion Paper on LDTs ("Discussion Paper"), which follows the FDA's late 2016 announcement that contrary to its earlier reports, it would not issue a final guidance on its proposed oversight of LDTs and allow for further public discussion on appropriate oversight. As it did in its 2014 guidance documents, the FDA continues to advocate a risk-based approach to LDT oversight and proposes focusing on new and significantly modified high and moderate risk LDTs; however, new and significantly modified LDTs in certain categories would not be expected to comply with premarket review, quality systems, and registration and listing requirements unless necessary to protect public health. These exempt categories include low risk LDTs, LDTs for rare diseases, traditional LDTs, LDTs intended solely for public health surveillance, certain LDTs used in CLIA certified labs, and LDTs intended solely for forensic use. Based on the FDA's guidance in the Discussion Paper, our products will likely not require FDA filing before launch. With respect to the post market surveillance of LDTs, the FDA's Discussion Paper recommends that laboratories initially report serious adverse events for all tests except the exempted categories if tests, which include LDTs intended for public health surveillance, some stem cell/tissue/organ transplantation LDTs, and LDTs intended solely for forensic use. The Discussion Paper notes that while the report neither represents the formal position of the FDA nor is it a final version of the LDT guidance documents published in 2014, it is hoped that its publication will continue to advance further public disclosure.

In Vitro Diagnostics

In the future, OncoCyte may elect to develop IVDs, which are regulated by the FDA as medical devices. Medical devices marketed in the United States are subject to the regulatory controls under CLIA, the Federal Food, Drug, and Cosmetic Act, and regulations adopted by the FDA. Some requirements, known as premarket requirements, apply to medical devices before they are marketed, and other requirements, known as post-market requirements, apply to medical devices after they are marketed.

The premarket requirements that must be met to market a medical device in the United States will depend on the classification of the device under FDA regulations. Medical devices are categorized into one of three classes, based on the degree of risk they present. Devices that pose the lowest risk are designated as Class I devices, devices that pose moderate risk are designated as Class II devices and are subject to general controls and special controls, and the devices that pose the highest risk are designated as Class III devices and are subject to general controls and premarket approval.

A premarket submission to the FDA will be required for some Class I devices, most Class II devices, and all Class III devices. Most Class I and some Class II devices are exempt from premarket submission requirements. Some Class I and most Class II devices may only be marketed after a 510(k) premarket notification, while a more extensive PMA or Premarket Approval is required to market Class III devices.

Until all regulatory requirements are phased in OncoCyte's initial confirmatory diagnostics will not require FDA filing before launch, and instead will be subject to CLIA certification and inspection requirements. If the new requirements are phased in or if OncoCyte elects to develop IVDs, those future screenings diagnostics may require a 510(k) submission or a PMA. In a 510(k) submission, the device sponsor must demonstrate that the new device is "substantially equivalent" to a predicate device in terms of intended use, technological characteristics, and performance testing. A 510(k) requires demonstration of substantial equivalence to another device that is legally marketed in the United States. Substantial equivalence means that the new device is at least as safe and effective as the predicate. A device is substantially equivalent if, in comparison to a predicate it (a) has the same intended use as the predicate; has the same technological characteristics as the predicate; or (b) has the same intended use as the predicate; and has different technological characteristics and the information submitted to FDA; does not raise new questions of safety and effectiveness; and is demonstrated to be at least as safe and effective as the legally marketed predicate device.

A claim of substantial equivalence does not mean the new and predicate devices must be identical. Substantial equivalence is established with respect to intended use, design, energy used or delivered, materials, chemical composition, manufacturing process, performance, safety, effectiveness, labeling, biocompatibility, standards, and other characteristics. A device may not be marketed in the United States until the submitter receives a letter declaring the device substantially equivalent. If the FDA determines that a device is not substantially equivalent, the applicant may resubmit another 510(k) with new data, or request a Class I or II designation through the FDA's *de novo* process that allows a new device without a valid predicate to be classified into Class I or II if it meets certain criteria, or file a reclassification petition, or submit a PMA.

A new 510(k) submission is required for changes or modifications to an existing approved device, where the modifications could significantly affect the safety or effectiveness of the device or the device, is to be marketed for a new or different indication for use.

A PMA for Class III devices is the most stringent type of premarket submission. Before the FDA approves a PMA, the sponsor must provide valid scientific evidence demonstrating reasonable assurance of safety and effectiveness for the device's intended use.

Submission of an application is no guarantee that CMS or FDA will find it complete and accept it for filing. If an application is accepted for filing or licensing, following CMS or FDA's review, CMS or FDA may grant marketing approval, request additional information or deny the application if it determines that the application does not provide an adequate basis for approval.

Health Insurance Portability and Accountability Act

Under the Health Insurance Portability and Accountability Act ("HIPAA"), the Department of Health and Human Services ("HHS") has issued regulations to protect the privacy and security of protected health information. HIPAA also regulates standardization of data content, codes and formats used in health care transactions and standardization of identifiers for health plans and providers. Penalties for violations of HIPAA regulations include civil and criminal penalties.

CMS and the Office of Civil Rights issued a final rule in February 2014 to amend both the HIPAA and CLIA regulations. The final rule amended the HIPAA privacy rule to remove the CLIA laboratory exceptions, and as a result, HIPAA-covered laboratories are now required to provide individuals, upon request, with access to their completed test reports. Under the 2014 rules CLIA laboratories and CLIA-exempt laboratories may provide copies of a patient's completed test reports that, using the laboratory's authentication process, can be identified as belonging to that patient. These changes to the CLIA regulations and the HIPAA Privacy Rule provide individuals with a greater ability to access their health information, empowering them to take a more active role in managing their healthcare. CLIA laboratories must create and maintain policies, procedures, and other documentation necessary to inform patients of the right to access laboratory test reports and how to exercise that right.

The requirements under these regulations may periodically change and could have an effect on OncoCyte's business operations if compliance becomes substantially more costly than under current requirements. New laws governing privacy may also be adopted in the future. We can provide no assurance that OncoCyte will remain in compliance with diverse privacy requirements in all of the jurisdictions in which it does business. Failure to comply with privacy requirements could result in civil or criminal penalties, which could have a materially adverse effect on OncoCyte's business.

Physician Referral Prohibitions

Under a federal law directed at "self-referral," commonly known as the Stark Law, there are prohibitions, with certain exceptions, on Medicare and Medicaid payments for laboratory tests referred by physicians who personally, or through a family member, have a "financial relationship"—including an investment or ownership interest or a compensation arrangement—with the clinical laboratory performing the tests. Several Stark Law exceptions are relevant to arrangements involving clinical laboratories, including: (1) fair market value compensation for the provision of items or services; (2) payments by physicians to a laboratory for clinical laboratory services; (3) certain space and equipment rental arrangements that satisfy certain requirements, and (4) personal services arrangements that satisfy certain requirements. The laboratory cannot submit claims to the Medicare Part B program for services furnished in violation of the Stark Law, and Medicaid reimbursements may be at risk as well. Penalties for violating the Stark Law include the return of funds received for all prohibited referrals, fines, civil monetary penalties and possible exclusion from the federal health care programs. Many states have comparable laws that are not limited to Medicare and Medicaid referrals.

Corporate Practice of Medicine

A number of states, including California, do not allow business corporations to employ physicians to provide professional services. This prohibition against the "corporate practice of medicine" is aimed at preventing corporations such as OncoCyte from exercising control over the medical judgments or decisions of physicians. The state licensure statutes and regulations and agency and court decisions that enumerate the specific corporate practice rules vary considerably from state to state and are enforced by both the courts and regulatory authorities, each with broad discretion. If regulatory authorities or other parties in any jurisdiction successfully assert that OncoCyte is engaged in the unauthorized corporate practice of medicine, OncoCyte could be required to restructure its contractual and other arrangements. In addition, violation of these laws may result in sanctions imposed against OncoCyte and/or the professional through licensure proceedings, and OncoCyte could be subject to civil and criminal penalties that could result in exclusion from state and federal health care programs.

Federal and State Fraud and Abuse Laws

A variety of federal and state laws prohibit fraud and abuse. These laws are interpreted broadly and enforced aggressively by various state and federal agencies, including CMS, the Department of Justice, the Office of Inspector General for HHS, and various state agencies. In addition, the Medicare and Medicaid programs increasingly use a variety of contractors to review claims data and to identify improper payments as well as fraud and abuse. These contractors include Recovery Audit Contractors, Medicaid Integrity Contractors and Zone Program Integrity Contractors. In addition, CMS conducts Comprehensive Error Rate Testing audits, the purpose of which is to detect improper Medicare payments. Any overpayments identified must be repaid unless a favorable decision is obtained on appeal. In some cases, these overpayments can be used as the basis for an extrapolation, by which the error rate is applied to a larger universe of claims, and which can result in even higher repayments.

The federal Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting, receiving, or providing remuneration, directly or indirectly, to induce or in return for either the referral of an individual, or the furnishing, recommending, or arranging for the purchase, lease or order of any health care item or service reimbursable, in whole or in part, under a federal health care program. The definition of "remuneration" has been broadly interpreted to include anything of value, including gifts, discounts, credit arrangements, payments of cash, ownership interests and providing anything at less than its fair market value. Recognizing that the Anti- Kickback Statute is broad and may technically prohibit many innocuous or beneficial arrangements within the health care industry, the Office of Inspector General for HHS has issued a series of regulatory "safe harbors." These safe harbor regulations set forth certain requirements that, if met, will assure immunity from prosecution under the federal Anti-Kickback Statute. Although full compliance with these provisions ensures against prosecution under the federal Anti-Kickback Statute, the failure of a transaction or arrangement to fit within a specific safe harbor does not necessarily mean that the transaction or arrangement is illegal or that prosecution under the federal Anti-Kickback Statute will be pursued.

HIPAA also created new federal crimes, including health care fraud and false statements relating to health care matters. The health care fraud statute prohibits knowingly and willfully executing a scheme to defraud any health care benefit program, including private third-party payers. A violation of this statute is a felony and may result in fines, imprisonment or exclusion from federal health care programs, such as the Medicare and Medicaid programs. The false statements statute prohibits knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for health care benefits, items or services. A violation of this statute is a felony and may result in fines, imprisonment or exclusion from federal health care programs.

Many states have laws similar to the federal laws described above and the state laws may be broader in scope and may apply regardless of payor.

Additionally, the U.S. Foreign Corrupt Practices Act ("FCPA") prohibits U.S. corporations and their representatives from offering, promising, authorizing or making payments to any foreign government official, government staff member, political party or political candidate in an attempt to obtain or retain business abroad. The scope of the FCPA includes interactions with certain healthcare professionals in many countries. Other countries have enacted similar anti-corruption laws and/or regulations.

MAJOR CUSTOMERS AND SOURCES OF REVENUES

Major Sources of Revenues

The following table shows our major sources of revenues, as a percentage of total revenues, that were recognized during the years ended December 31, 2017, 2016, and 2015:

	Year Ended December 31,		
Sources of Revenues	**2017**	**2016**	**2015**
CIRM grant income [1]	-%	38.0%	42.7%
NIH grant income [2]	5.0%	-%	6.5%
IIA (formerly OCS) grant income (Cell Cure, Israel)	43.2%	24.0%	14.4%
Subscriptions, advertising, licensing and other (various customers) [3]	49.4%	35.0%	29.4%
Other	2.4%	3.0%	7.0%

(1) Reflects income from grants to Asterias from the California Institute for Regenerative Medicine (CIRM) prior to the Asterias Deconsolidation.

(2) For 2017, reflects income from grants to BioTime from the National Institutes of Health (NIH). For 2015, reflects income from grants to ReCyte Therapeutics from the NIH.

(3) For each of 2017 and 2016, one individual customer represents greater than 5% of total revenues. For 2015, no individual customer greater than 5% of total revenues.

By Geographic Area

	Year Ended December 31,		
Geographic Area	**2017**	**2016**	**2015**
United States	$ 1,651	$ 4,497	$ 5,976
Foreign [1]	1,807	1,426	1,060
Total revenues	$ 3,458	$ 5,923	$ 7,036

(1) Foreign revenues are primarily earned in Israel.

MARKETING

Online Database Products

LifeMap Sciences sells subscriptions primarily through the internet to its database products to biotech and pharmaceutical companies worldwide. The *GeneCards*® Suite, includes *GeneCards*®, the leading human gene database, and *MalaCards*™, the human disease database.

Plasma Volume Expanders

Hextend® is being distributed in the U.S. by Hospira and in South Korea by CJ Healthcare under exclusive licenses from us. Because *Hextend*® is a surgical product, sales efforts are directed to physicians and hospitals. *Hextend*® competes with other products used to treat or prevent hypovolemia, including albumin, generic 6% hetastarch solutions, and crystalloid solutions. The competing products have been commonly used in surgery and trauma care for many years, and in order to sell *Hextend*®, physicians must be convinced to change their product loyalties. The market price of albumin has declined and generic 6% hetastarch solutions sell at low prices, which has caused Hospira and CJ Healthcare to lower the prices at which they sell *Hextend*®.

In addition to price competition, sales of *Hextend*® have been adversely affected if certain safety labeling changes required by the FDA for the entire class of hydroxyethyl starch products, including *Hextend*®. The labeling changes were approved by the FDA in November 2013 and include a boxed warning stating that the use of hydroxyethyl starch products, including *Hextend*®, increases the risk of mortality and renal injury requiring renal replacement therapy in critically ill adult patients, including patients with sepsis, and that *Hextend*® should not be used in critically ill adult patients, including patients with sepsis. Warning and precaution information is required along with information about contraindications, adverse reactions, and certain recent studies. The warning and precautions include avoiding the use of *Hextend*® in patients with pre-existing renal dysfunction, that the coagulation status of patients undergoing open heart surgery in association with cardiopulmonary bypass should be monitored as excess bleeding has been reported with hydroxyethyl starch solutions in that population, that the use of *Hextend*® should be discontinued at the first sign of coagulopathy, and that the liver function of patients receiving hydroxyethyl starch products, including *Hextend*® should also be monitored.

Therapeutic Products and Medical Devices

Because our planned therapeutic products and medical devices are still in the research and development stage, we will not initially need to have our own marketing personnel. If we or our subsidiaries are successful in developing marketable therapeutic products and medical devices we will need to build our own marketing and distribution capability for those products, which would require the investment of significant financial and management resources, or we and our subsidiaries will need to find collaborative marketing partners, independent sales representatives, or wholesale distributors for the commercial sale of those products.

If we market products through arrangements with third parties, we may pay sales commissions to sales representatives or we may sell or consign products to distributors at wholesale prices. This means that our gross profit from product sales may be less than would be the case if we were to sell our products directly to end users at retail prices through our own sales force. On the other hand, selling to distributors or through independent sales representatives would allow us to avoid the cost of hiring and training our own sales employees. There can be no assurance we will be able to negotiate distribution or sales agreements with third parties on favorable terms to justify our investment in our products or achieve sufficient revenues to support our operations.

Laboratory Diagnostic Tests

Following completion of clinical validation, OncoCyte will market its diagnostic tests directly to health care providers working in the areas of cancer for which OncoCyte develops liquid biopsy tests. The health care providers will collect blood samples or send patients to laboratories to have blood samples collected. The blood samples will be sent to OncoCyte's CLIA laboratory, either by the health care provider or the laboratory, where the sample will be run through an assay and a gene expression classifier to determine a binary result, either benign or suspicious. That result will be presented to the physician ordering the procedure in a standardized report. OncoCyte expects to ramp up sales and marketing teams in coordination with progress in the development of its diagnostic tests and over time will continue to grow its sales, market access and marketing organizations to increase the awareness and utilization of its diagnostic tests.

COMPETITION

We face substantial competition in all of fields of business in which we engage. That competition is likely to intensify as new products and technologies reach the market. Superior new products are likely to sell for higher prices and generate higher profit margins if acceptance by the medical community is achieved. Those companies that are successful at being the first to introduce new products and technologies to the market may gain significant economic advantages over their competitors in the establishment of a customer base and track record for the performance of their products and technologies. Such companies will also benefit from revenues from sales that could be used to strengthen their research and development, production, and marketing resources. Companies engaged in the medical products industry face the risk of obsolescence of their products and technologies as more advanced or cost-effective products and technologies are developed by competitors. As the industry matures, companies will compete based upon the performance and cost-effectiveness of their products.

Products for Regenerative Medicine

The cell therapy industry is characterized by rapidly evolving technology and intense competition. Our competitors include major multinational pharmaceutical companies, specialty biotechnology companies, and chemical and medical products companies operating in the fields of regenerative medicine, cell therapy, tissue engineering, and tissue regeneration. Many of these companies are well established and possess technical, research and development, financial, and sales and marketing resources significantly greater than ours. In addition, certain smaller biotech companies have formed strategic collaborations, partnerships, and other types of joint ventures with larger, well-established industry competitors that afford the smaller companies' potential research and development as well as commercialization advantages. Academic institutions, governmental agencies, and other public and private research organizations are also conducting and financing research activities, which may produce products directly competitive to those we are developing.

We believe that some of our competitors are trying to develop pluripotent cells and hEPC-based technologies and products that may compete with our stem cell products based on efficacy, safety, cost, and intellectual property positions. We are aware that Ocata, which was recently acquired by a subsidiary of Astellas Pharma Inc., and Retinal Patch Technologies Inc., are conducting clinical trials of a hES cell products designed to treat age-related macular degeneration. If their products are proven to be safe and effective, they may reach the market ahead of *OpRegen*®.

We may also face competition from companies that have filed patent applications relating to the propagation and differentiation of stem cells. Those companies include Ocata, which in 2015 had certain U.S. patents issue with claims directed to methods of producing RPE cells and isolating and purifying such cells. We may be required to seek licenses from these competitors in order to commercialize certain products proposed by us, and such licenses may not be granted.

Cancer Diagnostic Testing

The cancer diagnostic test industry is characterized by rapidly evolving technology and intense competition. OncoCyte's competitors include major multinational diagnostic companies and specialty biotechnology companies. Many of these companies are well-established and possess technical, research and development, financial, and sales and marketing resources significantly greater than OncoCyte's. In addition, smaller biotech companies may form strategic collaborations, partnerships, and other types of joint ventures with larger, well established industry competitors that afford these companies' potential research and development and commercialization advantages. Academic institutions, governmental agencies, and other public and private research organizations are also conducting and financing research activities which may produce diagnostic tests directly competitive to those OncoCyte is developing.

Molecular diagnostic competitors in the category of OncoCyte's first planned diagnostic test launch (lung confirmatory) include two currently marketed diagnostic tests. Xpresys Lung was launched in late 2013 by Integrated Diagnostics and that company has recently announced coverage by major payers. The other currently marketed diagnostic test is Early CDT lung, which was launched in 2012 by a European diagnostics company OncImmune Ltd. OncImmune has sold its U.S. assets to a CLIA laboratory, operating under the name OncImmune USA, LLC. Additionally, OncoCyte anticipates competition from Exact Sciences Corp, Gensignia Life Sciences, Inc. and Veracyte, Inc. which have diagnostic tests in the pipeline. Gensignia announced the certification of its CLIA lab in October 2015.

In addition to molecular diagnostics, an imaging competitor has a diagnostic test that may compete directly in confirmatory lung diagnostic testing. VisionGate, Inc. has a sputum test that is read by their proprietary system, which takes an optical CT scan of individual cells to generate 3D images of each cell.

Plasma Volume Expanders

Our plasma volume expander solution, *Hextend*®, competes with products currently used to treat or prevent hypovolemia, including albumin, other colloid solutions, and crystalloid solutions presently manufactured by established pharmaceutical companies, and with human blood products. To compete with new and existing plasma expanders, we have developed products that contain constituents that may prevent or reduce the physiological imbalances, bleeding, fluid overload, edema, poor oxygenation, and organ failure that can occur when competing products are used.

Hextend® competes with products that are commonly used in surgery and trauma care, and some, especially crystalloids, sell at low prices. The competing products are being manufactured and marketed by established pharmaceutical companies with large research facilities, technical staffs, and financial and marketing resources. B. Braun presently markets *Hespan*®, an artificial plasma volume expander containing 6% hetastarch in saline solution. Hospira and Teva Pharmaceutical Industries sell a generic equivalent of *Hespan*®. Hospira, also markets *Voluven*®, a plasma volume expander containing a 6% low molecular weight hydroxyethyl starch in saline solution. Sanofi-Aventis, Baxter International, and Alpha Therapeutics sell albumin, and Hospira, Baxter International, and B. Braun sell crystalloid solutions. As a result of the introduction of generic plasma expanders and new proprietary products, competition in the plasma expander market has intensified, and wholesale prices of both hetastarch products and albumin have declined which has forced Hospira and CJ Healthcare to make reduce the price at which they sell *Hextend*® in order to maintain their share of the market.

ITEM 1A. RISK FACTORS

Our business is subject to various risks, including those described below. You should consider the following risk factors, together with all of the other information included in this report, which could materially adversely affect our proposed operations, our business prospects, and financial condition, and the value of an investment in our business. There may be other factors that are not mentioned here or of which we are not presently aware that could also affect our business operations and prospects. Those of our subsidiaries and other affiliates within BioTime that are developing therapeutic products derived from pluripotent stem cells will face substantially the same kind of risks that affect our business, as well as the risks related to our industry generally.

Risks Related to Our Business Operations and Capital Requirements

We have incurred operating losses since inception and we do not know if we will attain profitability.

Our total operating losses for the fiscal years ended December 31, 2017, 2016, and 2015 were $38.9, $59.0 million, and $65.8 million respectively, and we had an accumulated deficit of $216.3 million, as of December 31, 2017. We primarily finance our operations through the sale of equity securities, research grants, licensing fees, royalties on product sales by our licensees, and subscription fees and advertising revenue from database products. Ultimately, our ability to generate sufficient operating revenue to earn a profit depends upon our success in developing and marketing or licensing our products, diagnostic tests, and technology. As a developer of therapeutic products derived from pluripotent stem cells, Asterias will face substantially the same kind of risks that affect our business, as well as the risks related to our industry generally.

We will spend a substantial amount of our capital on research and development but we might not succeed in developing products and technologies that are useful in medicine.

We are attempting to develop new medical products and technology. None of our experimental products and technologies has received regulatory approval for commercialization and have only been used in laboratory studies in vitro or in animals. These new products and technologies might not prove to be safe and efficacious in the human medical applications for which they are being developed. The experimentation we are doing is costly, time consuming, and uncertain as to its results. We incurred research and development expenses amounting to $24.0 million, $36.1 million and $42.6 million during the fiscal years ended December 31, 2017, 2016 and 2015, respectively. If we are successful in developing a new technology or products, refinement of the new technology or product and definition of the practical applications and limitations of the technology or product may take years and require the expenditure of large sums of money. Future clinical trials of new therapeutic products, particularly those products that are regulated as drugs or devices, will be very expensive and will take years to complete. We may not have the financial resources to fund clinical trials on our own and we may have to enter into licensing or collaborative arrangements with other companies. Any such arrangements may be dilutive to our ownership or economic interest in the products we develop, and we might have to accept royalty payments on the sale of products rather than receiving the gross revenues from product sales. In addition, we may discontinue one or more of the research or product development programs. Other programs slated for development including those we consolidate in a new subsidiary, AgeX Therapeutics, Inc., may be delayed or discontinued should adequate funding on acceptable terms not be available.

The amount and pace of research and development work that we and our subsidiaries can do or sponsor, and our ability to commence and complete clinical trials required to obtain regulatory approval to market our therapeutic and medical device products, depends upon the amount of money we have.

At December 31, 2017, we had $38.2 million of cash, cash equivalents and available-for-sale securities on hand, including $7.4 million held by AgeX. Although BioTime and subsidiaries combined have raised a total of approximately $55.0 million of net proceeds through the sale of equity securities in 2017, there can be no assurance that we or subsidiaries will be able to raise additional funds on favorable terms or at all, or that any funds raised will be sufficient to permit us or our subsidiaries to develop and market our products and technology. Unless we and our subsidiaries are able to generate sufficient revenue or raise additional funds when needed, it is likely that we will be unable to continue our planned activities, even if we make progress in our research and development projects. We may have to postpone or limit the pace of our research and development work and planned clinical trials of our product candidates unless our cash resources increase through a growth in revenues or additional equity investment or borrowing.

We will need to issue additional equity or debt securities in order to raise additional capital needed to pay our operating expenses.

We and our subsidiaries and affiliates, including Asterias and OncoCyte, expect to continue to incur substantial research and product development expenses, and will need to raise additional capital to pay operating expenses until we are able to generate sufficient revenues from product sales, royalties and license fees. Our ability, and the ability of Asterias and OncoCyte, to raise additional equity or debt capital will depend, not only on progress made in developing new products and technologies, but also on access to capital and conditions in the capital markets. There can be no assurance that we, Asterias and OncoCyte will be able to raise capital on favorable terms or at times and in amounts needed to successfully finance product development, clinical trials, and general operations. Sales of additional equity securities by us or our subsidiaries could result in the dilution of the interests of shareholders or may otherwise limit our ability to finance further in the future, which may negatively impact our business and operations.

In addition to our own research and development expenses we may need to support to the research and development efforts of our affiliates if they are unable to independently raise sufficient capital

We have in the past supported the operations of our affiliates OncoCyte and Asterias while they were consolidated subsidiaries. We still own substantial equity interests in those companies, though less than a majority interest, and if either or both of those affiliates were unable to obtain sufficient funding to continue their respective operations we may agree to provide financial support to them in order to preserve or increase the value of the significant equity stakes we continue to hold. However, there is no assurance that we would elect to provide additional financing to our affiliates and if we determine not to do so our equity ownership may be diluted and value of the shares of our affiliates may decrease significantly.

Comprehensive tax reform legislation could adversely affect our business and financial condition.

The U.S. government has recently enacted comprehensive tax legislation that includes significant changes to the taxation of business entities. This newly enacted federal income tax law, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses), limitation of the deduction for net operating losses to 80% of current year taxable income and elimination of net operating loss carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the new federal tax law is uncertain and our business and financial condition could be adversely affected. In addition, it is uncertain if and to what extent various states will conform to the newly enacted federal tax law.

Our ability to use net operating losses to offset future taxable income may be subject to limitations.

As of December 31, 2017, we had federal and state gross net operating loss carryforwards of approximately $258 million. The federal and state net operating loss carryforwards will begin to expire, if not utilized, in varying amounts between 2018 and 2036. These net operating loss carryforwards could expire unused and be unavailable to offset future income tax liabilities. Under the newly enacted federal income tax law, federal net operating losses incurred in 2018 and in future years may be carried forward indefinitely, but the deductibility of such federal net operating losses is limited. It is uncertain if and to what extent various states will conform to the newly enacted federal tax law. In addition, under Section 382 of the Internal Revenue Code of 1986, as amended, and corresponding provisions of state law, if a corporation undergoes an “ownership change,” which is generally defined as a greater than 50% change, by value, in its equity ownership over a three-year period, the corporation’s ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change income or taxes may be limited. We may experience ownership changes in the future as a result of subsequent shifts in our stock ownership, some of which may be outside of our control. If an ownership change occurs and our ability to use our net operating loss carryforwards is materially limited, it would harm our future operating results by effectively increasing our future tax obligations.

Failure in our information technology and storage systems could significantly disrupt the operation of our business.

Our ability to execute our business plan and maintain operations depends on the continued and uninterrupted performance of our information technology (“IT”) systems. IT systems are vulnerable to risks and damages from a variety of sources, including telecommunications or network failures, malicious human acts and natural disasters. Moreover, despite network security and back-up measures, some of our and our vendors’ servers are potentially vulnerable to physical or electronic break-ins, computer viruses and similar disruptive problems. Despite precautionary measures to prevent unanticipated problems that could affect our IT systems, sustained or repeated system failures that interrupt our ability to generate and maintain data could adversely affect our ability to operate our business.

Our business could be adversely affected if we lose the services of the key personnel upon whom we depend.

We believe that our continued success depends to a significant extent upon our efforts and ability to retain highly qualified personnel, including our Co-Chief Executive Officers, Dr. Michael West and Adi Mohanty. All of our officers and other employees are at-will employees, and therefore may terminate employment with us at any time with no advance notice. The loss of the services of Dr. West, Mr. Mohanty or other members of senior management of BioTime or of our subsidiaries could have a material adverse effect on us. Further, the replacement of any of such individuals likely would involve significant time and costs and may significantly delay or prevent the achievement of our business and clinical objectives and would harm our business.

Failure of our internal control over financial reporting could harm our business and financial results.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Because of its inherent limitations, internal control over financial reporting is not intended to provide absolute assurance that a misstatement of our financial statements would be prevented or detected. Our growth and entry into new products, technologies and markets will place significant additional pressure on our system of internal control over financial reporting. Any failure to maintain an effective system of internal control over financial reporting could limit our ability to report our financial results accurately and timely or to detect and prevent fraud. Operating our business through subsidiaries, some of which are located in foreign countries, also adds to the complexity of our internal control over financial reporting and adds to the risk of a system failure, an undetected improper use or expenditure of funds or other resources by a subsidiary, or a failure to properly report a transaction or financial results of a subsidiary. We allocate certain expenses among BioTime itself and one or more of our subsidiaries, which creates a risk that the allocations we make may not accurately reflect the benefit of an expenditure or use of financial or other resources by BioTime as the parent company and the subsidiaries among which the allocations are made. An inaccurate allocation may impact our consolidated financial results, particularly in the case of subsidiaries that we do not wholly own since our financial statements include adjustments to reflect the minority ownership interests in our subsidiaries held by others.

Risks Related to Government Regulation

We may be subject, directly or indirectly, to federal and state healthcare fraud and abuse laws, false claims laws, and health information privacy and security laws. If we are unable to comply, or has not fully complied, with such laws, it could face substantial penalties.

If we obtain FDA approval for any of our product candidates or technologies and begin commercializing those products or technologies in the United States, our operations may be subject to various federal and state fraud and abuse laws, including, without limitation, the federal Anti-Kickback Statute, the federal False Claims Act, and physician sunshine laws and regulations. These laws may impact, among other things, our proposed sales, marketing, and education programs. In addition, we may be subject to patient privacy regulation by both the federal government and the states in which we conduct our business. The laws that may affect our ability to operate include:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, to induce, or in return for, the purchase or recommendation of an item or service reimbursable under a federal healthcare program, such as the Medicare and Medicaid programs;

- federal civil and criminal false claims laws and civil monetary penalty laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid, or other third-party payors that are false or fraudulent;

- the federal Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), which created new federal criminal statutes that prohibit executing a scheme to defraud any healthcare benefit program and making false statements relating to healthcare matters;

- HIPAA, as amended by the Health Information Technology and Clinical Health Act, (“HITECH”) and our implementing regulations, which imposes certain requirements relating to the privacy, security, and transmission of individually identifiable health information;

- The Physician Payments Sunshine Act requires manufacturers of drugs, devices, biologics, and medical supplies to report annually to the U.S. Department of Health and Human Services information related to payments and other transfers of value to physicians, other healthcare providers, and teaching hospitals, and ownership and investment interests held by physicians and other healthcare providers and their immediate family members and applicable group purchasing organizations; and

- state law equivalents of each of the above federal laws, such as anti-kickback and false claims laws that may apply to items or services reimbursed by any third-party payors, including commercial insurers, state laws that require pharmaceutical companies to comply with the pharmaceutical industry’s voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; state laws that require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures, and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

Because of the breadth of these laws and the narrowness of the statutory exceptions and safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws. In addition, recent health care reform legislation has strengthened these laws.

If our operations are found to be in violation of any of the laws described above or any other governmental regulations that apply, we may be subject to penalties, including civil and criminal penalties, damages, fines, exclusion from participation in government health care programs, such as Medicare and Medicaid, imprisonment, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

If we do not receive regulatory approvals we will not be permitted to sell our therapeutic and medical device products.

The therapeutic and medical device products that we and our subsidiaries develop cannot be sold until the FDA and corresponding foreign regulatory authorities approve the products for medical use. The need to obtain regulatory approval to market a new product means that:

- We will have to conduct expensive and time-consuming clinical trials of new products. The full cost of conducting and completing clinical trials necessary to obtain FDA and foreign regulatory approval of a new product cannot be presently determined, but could exceed our current financial resources.

- Clinical trials and the regulatory approval process for a pharmaceutical or cell-based product can take several years to complete. As a result, we will incur the expense and delay inherent in seeking FDA and foreign regulatory approval of new products, even if the results of clinical trials are favorable.

- Data obtained from preclinical and clinical studies is susceptible to varying interpretations and regulatory changes that could delay, limit, or prevent regulatory agency approvals.

- Because the therapeutic products we are developing with pluripotent stem cell technology involve the application of new technologies and approaches to medicine, the FDA or foreign regulatory agencies may subject those products to additional or more stringent review than drugs or biologicals derived from other technologies.

- A product that is approved may be subject to restrictions on use.

- The FDA can recall or withdraw approval of a product, if it deems necessary.

- We will face similar regulatory issues in foreign countries.

Government-imposed bans or restrictions and religious, moral, and ethical concerns about the use of hES cells could prevent us from developing and successfully marketing stem cell products.

Government-imposed bans or restrictions on the use of embryos or hES cells in research and development in the United States and abroad could generally constrain stem cell research, thereby limiting the market and demand for our products. During March 2009, President Obama lifted certain restrictions on federal funding of research involving the use of hES cells, and in accordance with President Obama's Executive Order, the National Institutes of Health (NIH) has adopted new guidelines for determining the eligibility of hES cell lines for use in federally funded research. The central focus of the proposed guidelines is to assure that hES cells used in federally funded research were derived from human embryos that were created for reproductive purposes, were no longer needed for this purpose, and were voluntarily donated for research purposes with the informed written consent of the donors. The hES cells that were derived from embryos created for research purposes rather than reproductive purposes, and other hES cells that were not derived in compliance with the guidelines, are not eligible for use in federally funded research. California law requires that stem cell research be conducted under the oversight of a stem cell review oversight committee (SCRO). Many kinds of stem cell research, including the derivation of new hES cell lines, may only be conducted in California with the prior written approval of the SCRO. A SCRO could prohibit or impose restrictions on the research that we plan to do. The use of hES cells may give rise to religious, moral, and ethical issues. These considerations could lead to more restrictive government regulations or could generally constrain stem cell research, thereby limiting the market and demand for our products.

There is a risk that OncoCyte's planned diagnostic tests could become subject to FDA regulation

We cannot provide any assurance that FDA regulation, including premarket review, will not be required in the future for OncoCyte's diagnostic tests, whether through additional guidance or regulations issued by the FDA, new enforcement policies adopted by the FDA or new legislation enacted by Congress. If premarket review, including approval, is required, OncoCyte's business could be negatively affected until such review is completed and clearance to market or approval is obtained. If OncoCyte is selling diagnostic tests when new FDA approval requirements are implemented, OncoCyte may be required to suspend sales until premarket clearance or approval is obtained. If OncoCyte's diagnostic tests are allowed to remain on the market but there is uncertainty about the legal status of those tests.

FDA regulations could also require, among other things, additional clinical studies and submission of a premarket notification or filing a PMA with the FDA. For example, LDTs with the same intended use as a cleared or approved companion diagnostic are defined in the FDA's draft guidance as "high-risk LDTs (Class III medical devices)" for which premarket review would be required. This may include the use of LDTs for screening patients for cancer. If a PMA review is required by the FDA, there can be no assurance that OncoCyte's diagnostic tests will be cleared or approved on a timely basis, if at all, nor can there any be assurance that labeling claims allowed by the FDA will be consistent with OncoCyte's intended claims or will be sufficient to support continued adoption of and reimbursement for the tests.

The price and sale of our products and OncoCyte's diagnostic tests may be limited by health insurance coverage and government regulation.

Success in selling our pharmaceutical and cell-based products, medical devices, and diagnostic tests may depend in part on the extent to which health insurance companies, HMOs, and government health administration authorities such as Medicare and Medicaid will pay for the cost of the products, tests, and related treatment. Until we introduce a new product or diagnostic test into the medical marketplace, we will not know with certainty whether adequate health insurance, HMO, and government coverage will be available to permit the product or test to be sold at a price high enough for us to generate a profit. In some foreign countries, pricing or profitability of health care products is subject to government control, which may result in low prices for our products. In the United States, there have been a number of federal and state proposals to implement similar government controls, and new proposals are likely to be made in the future.

We expect that the commercial opportunity for some of our products may depend on our ability to obtain reimbursement and continued coverage from various payors, including government entities and insurance companies. Reimbursement Programs

If these third-party payors do not consider our products to be cost-effective compared to other therapies or diagnostic tests, they may not cover our products or diagnostic tests as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow us to sell our products on a profitable basis.

For example, in the United States, healthcare providers are reimbursed for covered services and products they deliver through Medicare, Medicaid and other government healthcare programs, as well as through private payers. Pharmacies are also reimbursed in a similar manner for drug products they dispense. We may be required to provide specified rebates or discounts on the products we sell to certain government funded programs, including Medicare and Medicaid, and those rebates or discounts have increased over time. The Patient Protection and Affordable Care Act (ACA), enacted in 2010, increased many of the mandatory discounts and rebates required of us and imposed a new Branded Prescription Pharmaceutical Manufacturers and Importers fee payable each year by us and other manufacturers. The new U.S. presidential administration has identified repealing and replacing the ACA as a priority. The timing and method of repeal of the ACA remains uncertain, but impending changes will likely impact the number of patient lives covered, the quality of the insurance and potentially the available reimbursement, Medicaid eligibility and the level of patient protections provided.

We face similar issues outside of the United States. In some non-U.S. jurisdictions, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing vary widely from country to country. For example, the EU provides options for its member states to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. A member state may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any of our products. Historically, products launched in the EU do not follow price structures of the United States and generally tend to be significantly lower.

The ACA and future changes to that law may adversely affect our business.

As a result of the adoption of the ACA, in the United States, substantial changes have been made to the system for paying for healthcare in the United States. The changes contemplated by the ACA are subject to rule-making and implementation timelines that extend for several years, as well as initiatives in Congress to amend or repeal the law, and this uncertainty limits our ability to forecast changes that may occur in the future. Certain provisions related to cost-savings and reimbursement measures could adversely affect our future financial performance.

If we fail to comply with the extensive legal and regulatory requirements affecting the health care industry, we could face increased costs, penalties and a loss of business.

Our activities, and the activities of the BioTime Group, our collaborators, distributors and other third-party providers, are subject to extensive government regulation and oversight both in the U.S. and in foreign jurisdictions. The FDA and comparable agencies in other jurisdictions will directly regulate many of our most critical business activities, including the conduct of preclinical and clinical studies, product manufacturing, advertising and promotion, product distribution, adverse event reporting and product risk management. Our interactions in the U.S. or abroad with physicians and other health care providers that may prescribe or purchase our products are also subject to government regulation designed to prevent fraud and abuse in the sale and use of the products and place greater restrictions on the marketing practices of health care companies. Health care companies are facing heightened scrutiny of their relationships with health care providers from anti-corruption enforcement officials. In addition, health care companies have been the target of lawsuits and investigations alleging violations of government regulation, including claims asserting submission of incorrect pricing information, impermissible off-label promotion of pharmaceutical products, payments intended to influence the referral of health care business, submission of false claims for government reimbursement, antitrust violations or violations related to environmental matters. Risks relating to compliance with laws and regulations may be heightened as we bring products to the market globally.

Regulations governing the health care industry are subject to change, with possibly retroactive effect, including:

- new laws, regulations or judicial decisions, or new interpretations of existing laws, regulations or decisions, related to health care availability, pricing or marketing practices, compliance with wage and hour laws and other employment practices, method of delivery, payment for health care products and services, compliance with health information and data privacy and security laws and regulations, tracking and reporting payments and other transfers of value made to physicians and teaching hospitals, extensive anti-bribery and anti-corruption prohibitions, product serialization and labeling requirements and used product take-back requirements;

- changes in the FDA and foreign regulatory approval processes that may delay or prevent the approval of new products and result in lost market opportunity;

- requirements that provide for increased transparency of clinical trial results and quality data, such as the EMA's clinical transparency policy, which could impact our ability to protect trade secrets and competitively-sensitive information contained in approval applications or could be misinterpreted leading to reputational damage, misperception or legal action which could harm our business; and

- changes in FDA and foreign regulations that may require additional safety monitoring, labeling changes, restrictions on product distribution or use, or other measures after the introduction of our products to market, which could increase our costs of doing business, adversely affect the future permitted uses of approved products, or otherwise adversely affect the market for our products.

Violations of governmental regulation may be punishable by criminal and civil sanctions against us, including fines and civil monetary penalties and exclusion from participation in government programs, including Medicare and Medicaid, as well as against executives overseeing our business. In addition to penalties for violation of laws and regulations, we could be required to repay amounts we received from government payors, or pay additional rebates and interest if we are found to have miscalculated the pricing information we have submitted to the government. We cannot ensure that our compliance controls, policies and procedures will in every instance protect us from acts committed by our employees, collaborators, partners or third-party providers that would violate the laws or regulations of the jurisdictions in which we operate. Whether or not we have complied with the law, an investigation into alleged unlawful conduct could increase our expenses, damage our reputation, divert management time and attention and adversely affect our business.

Even if we receive approval for our products, we may be subject to extensive regulatory obligations in order to commercialize our products.

Even after initial FDA or foreign regulatory agency approval has been obtained, further studies may be required to provide additional data on safety or to gain approval for the use of a product as a treatment for clinical indications other than those initially targeted. Use of a product during testing and after marketing could reveal side effects that could delay, impede, or prevent marketing approval, result in a regulatory agency-ordered product recall, or in regulatory agency-imposed limitations on permissible uses or in withdrawal of approval. For example, if the FDA or foreign regulatory agency becomes aware of new safety information after approval of a product, it may require us to conduct further clinical trials to assess a known or potential serious risk and to assure that the benefit of the product outweigh the risks. If we are required to conduct such a post-approval study, periodic status reports must be submitted to the FDA or foreign regulatory agency. Failure to conduct such post-approval studies in a timely manner may result in substantial civil or criminal penalties. Data resulting from these clinical trials may result in expansions or restrictions to the labeled indications for which a product has already been approved. Any of these requirements or actions may negatively impact our business or operations.

If we are deemed to be an investment company, we may be required to institute burdensome compliance requirements and our activities may be restricted.

An entity that, among other things, is or holds itself out as being engaged primarily, or proposes to engage primarily, in the business of investing, reinvesting, owning, trading or holding certain types of securities would be deemed an investment company under the Investment Company Act of 1940, as amended (the "1940 Act"). Based on the securities we hold, including our equity ownership in our publicly traded subsidiaries, we may not meet the requirements for an exemption promulgated under the 1940 Act and as a result we may be unable finance and subject to additional limitations on the operation of our business.

Risks Related to Our Clinical Development and Commercial Operations

Clinical studies are costly, time consuming and are subject to risks that could delay or prevent commercialization of our current or future product candidates.

We cannot guarantee that any clinical studies will be conducted as planned or completed on schedule, if at all. A failure of one or more clinical studies can occur at any stage of development. Events that may prevent successful or timely completion of clinical development include but are not limited to:

- inability to generate satisfactory preclinical, toxicology, or other *in vivo* or *in vitro* data or diagnostics to support the initiation or continuation of clinical studies necessary for product approval;
- delays in securing clinical investigators and reaching agreement on acceptable terms with CROs and clinical study sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and clinical study sites;
- delays in obtaining required Institutional Review Board ("IRB"), approval at each clinical study site;
- failure to obtain permission from regulatory authorities to conduct a clinical study, after review of an investigational new drug ("IND") or equivalent foreign application or amendment;
- slower than anticipated rates of patient recruitment and enrollment, or failing to reach the targeted number of patients due to competition for patients from other trials;
- failure by clinical sites or our CROs or other third parties to adhere to clinical study requirements or report complete findings;
- failure to perform the clinical studies in accordance with the FDA's good clinical practices requirements, or applicable foreign regulatory guidelines;
- patients dropping out of our clinical studies;
- occurrence of adverse events associated with our product candidates;

- negative or inconclusive results from our clinical trials which may result in our deciding, or regulators requiring us, to conduct additional clinical studies or to curtail or abandon development programs for a product candidate;
- unforeseen side effects, possibly resulting in the FDA or other regulatory authorities denying approval of our product candidates;
- approval and introduction of new therapies or changes in standards of practice or regulatory guidance that render our clinical trial endpoints or the targeting of our proposed indications obsolete;
- inability to monitor patients adequately during or after treatment or problems with investigator or patient compliance with the trial protocols;
- inability or unwillingness of medical investigators to follow our clinical protocols; and
- unavailability of clinical trial supplies
- inability to use clinical trial results from foreign jurisdictions in support of U.S. regulatory approval;
- changes in regulatory requirements and guidance that require amending or submitting new clinical protocols;
- the cost of clinical studies of our product candidates; and
- delays in reaching agreement on acceptable terms with third-party manufacturers and the time for manufacture of sufficient quantities of our product candidates for use in clinical studies.

Any inability to successfully complete clinical development and obtain regulatory approval could result in additional costs to us or impair our ability to generate revenue. Clinical study delays could also shorten any periods during which our products have patent protection and may allow competitors to develop and bring products to market before we do and may harm our business and results of operations.

The commercial success of any of our current or future product candidates will depend upon the degree of market acceptance by physicians, patients, third-party payors, and others in the medical community.

Even with the approvals from the FDA and comparable foreign regulatory authorities, the commercial success of our products will depend in part on the health care providers, patients, and third-party payors accepting our product candidates as medically useful, cost-effective, and safe. Any product that we bring to the market may not gain market acceptance by physicians, patients, third-party payors and other health care providers. The degree of market acceptance of any of our products will depend on a number of factors, including without limitation:

- the efficacy of the product as demonstrated in clinical studies and potential advantages over competing treatments;
- the prevalence and severity of the disease and any side effects;
- the clinical indications for which approval is granted, including any limitations or warnings contained in a product’s approved labeling;
- the convenience and ease of administration;
- the cost of treatment, particular as additive to existing treatments;
- the willingness of the patients and physicians to accept and use these therapies;
- the marketing, sales and distribution support for the products;
- the publicity concerning our products or competing products and treatments; and
- the pricing and availability of third-party insurance coverage and reimbursement.

Even if a product displays a favorable efficacy and safety profile upon approval, market acceptance of the product remains uncertain. Efforts to educate the medical community and third-party payors on the benefits of the products may require significant investment and resources and may never be successful. If our products fail to achieve an adequate level of acceptance by physicians, patients, third-party payors, and other health care providers, we will not be able to generate sufficient revenue to become or remain profitable.

If the market opportunities for our product candidates are smaller than we believe they are, we may not meet our revenue expectations and, even assuming approval of a product candidate, our business may suffer.

Our projections of both the number of potential users in the markets we are attempting to address are based on our beliefs and estimates. You should bear in mind the following:

- Our estimates have been derived from a variety of sources, including publications and scientific literature estimating the total number of patients, currently approved or used therapies, or market research as well as certain assumptions regarding the potential size of the market assuming broad regulatory approval or potential usage by physicians beyond the approved label, any of which may prove to be incorrect.

- The scope of approval and potential use may be significantly narrower and the number of patients may turn out to be lower than expected.

- Competitive agents or approaches may be approved or come into use by the relevant medical provider and the potentially addressable patient population for each of our product candidates may be limited or may not be amenable to treatment with our product candidates, and new patients may become increasingly difficult to identify or gain access to, any which could adversely affect our results of operations and our business.

Sales of the products we may develop will be adversely impacted by the availability of competing products.

Our products and product candidates will face substantial competition, whether through the development of safer and more effective alternatives to our products, lower costs to administer than our products or other forms of competition such as more favorable distribution, reimbursement and pricing or formulary and health care provider acceptance. For example, sales of *Hextend*® have been adversely impacted by the availability of other products that are commonly used in surgery and trauma care and sell at low prices. Ocata, which was recently acquired by a subsidiary of Astellas Pharma, Inc. for $379 million, is conducting clinical trials of a pluripotent stem cell product designed to treat AMD. If the Ocata product is proven to be safe and effective, it may be approved and reach the market ahead of *OpRegen*®. Moreover, Ocata was recently issued a patent in the U.S. with respect to the manufacture of RPE products that could adversely impact our rights to manufacture *OpRegen*®. In addition, even if our products are approved, physicians and hospitals may be reluctant to try a new product due to the high degree of risk associated with the application of new technologies and products in the field of human medicine.

We will face risks related to the manufacture of medical products for any product candidates that we develop.

The manufacture of medical products is complex and requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. We are developing manufacturing capability through Cell Cure for *OpRegen*® in Israel, but we will need to greater manufacturing capacity if we successfully commercialize those products. Unless we are able to raise the capital required to construct our own commercial scale manufacturing facilities, and are able to develop the expertise to manage and operate a manufacturing facility of our own, we may need to rely on third-party manufacturers to manufacture any products that we develop. There is no assurance that we will be able to identify manufacturers on acceptable terms or at all. Regardless of whether we do our own manufacturing or rely on third parties to manufacture products for us, we will face all risks related to the manufacture of therapeutic products for use in medicine including the following risks:

- We or any third-party manufacturers might be unable to timely formulate and manufacture our products or produce the quantity and quality required to meet our clinical and commercial needs, if any.

- We or any third-party manufacturers may not be able to execute our manufacturing procedures appropriately.

- Any third-party manufacturers we engage may not perform as agreed or may not remain in the contract manufacturing business for the time required to supply our clinical trials or to successfully produce, store and distribute our products on a commercial scale.

- We or any third-party manufacturers will be subject to ongoing periodic unannounced inspection by the FDA and corresponding state agencies to ensure strict compliance with current good manufacturing practices, or cGMP, and other government regulations and corresponding foreign standards. We will not have control over third-party manufacturers' compliance with applicable regulations and standards.

- We may not own, or may have to share, the intellectual property rights to any improvements made by our third-party manufacturers in the manufacturing process for our product candidates.

- Third-party manufacturers could breach or terminate their agreements with us.

- We or third-party manufacturers may experience manufacturing difficulties due to resource constraints or as a result of labor disputes or unstable political environments.

In addition, we may rely on third parties to perform release testing on our product candidates prior to delivery to patients. If these tests are not appropriately conducted and test data are not reliable, patients could be put at risk of serious harm which could result in product liability suits.

If we or any third-party manufacturers that we may engage were to encounter any of these difficulties, our ability to provide our product candidates to patients in clinical trials or to the medical market place would be jeopardized. Any delay or interruption in the supply of clinical trial supplies could delay the completion of clinical trials, increase the costs associated with maintaining clinical trial programs and, depending upon the period of delay, could require us to either commence new clinical trials at additional expense or terminate clinical trials completely. Each of these risks could delay our clinical trials, any approval of our product candidates by the FDA, or the commercialization of our product candidates, and could result in higher costs or deprive us of potential product revenue.

Our reliance on third parties to manufacture products, including *Renevia*®, will subject us to risks over which we may have little or no control, and which could lead to excessive product acquisition costs, production delays, and supply shortages that could impair our ability to complete the development and commercialization of our product candidates.

We do not currently have nor do we plan to acquire the infrastructure or capability internally to manufacture our clinical supplies for Renevia and our other *HyStem*® products on a clinical or commercial scale. In addition to the risks associated with manufacturing our products generally, discussed above, our reliance on third-party manufacturers for products, including *Renevia*® will expose us to the following additional risks:

- We may be unable to identify manufacturers on acceptable terms or at all.

- Our third-party manufacturers might be unable to timely formulate and manufacture our products or produce the quantity and quality required to meet our clinical and commercial needs.

- Contract manufacturers may not be able to execute our manufacturing procedures appropriately.

- Our future contract manufacturers may not perform as agreed or may not remain in the contract manufacturing business for the time required to supply our clinical trials or to successfully produce, store and distribute our products commercially.

- Contract manufacturers could be forced to suspend the production of our products if their facilities and operating procedures fail to pass inspection by the FDA and corresponding state agencies conducted to assure compliance with their applicable regulations. We do not have control over third-party manufacturers' compliance with these regulations and standards.

- We may not own, or may have to share, the intellectual property rights to any improvements made by our third-party manufacturers in the manufacturing process for our product candidates.

- We may not be able to obtain enabling licenses of third-party intellectual property rights needed by the manufacturers to produce our products.

- Our third-party manufacturers could breach or terminate their agreements with us.

Additionally, our manufacturers may experience manufacturing difficulties due to resource constraints or as a result of labor disputes or unstable political environments. If our manufacturers were to encounter any of these difficulties, or otherwise fail to comply with their contractual obligations, our ability to provide our product candidates to patients in clinical trials would be jeopardized. Any delay or interruption in the supply of clinical trial supplies could delay the completion of clinical trials, increase the costs associated with maintaining clinical trial programs and, depending upon the period of delay, require us to commence new clinical trials at additional expense or terminate clinical trials completely.

Each of these risks could delay our clinical trials, the approval, if any of our product candidates by the FDA or the commercialization of our product candidates or result in higher costs or deprive us of potential product revenue. In addition, we rely on third parties to perform release testing on our product candidates prior to delivery to patients. If these tests are not appropriately conducted and test data are not reliable, patients could be put at risk of serious harm and could result in product liability suits.

Any cell-based products that receive regulatory approval may be difficult and expensive to manufacture profitably.

Cell-based products are among the more expensive biological products to manufacture in accordance with cGMP. We do not yet have sufficient information to reliably estimate the cost of commercially manufacturing any of our product candidates. Excessive manufacturing costs could make our product candidates too expensive to compete in the medical market place with alternative products manufactured by our competitors, or might result in third party payors such as health insurers and Medicare, declining to cover our products or setting reimbursement levels too low for us to earn a profit from the commercialization of one or more of our products.

We face potential product liability, and, if successful claims are brought against us, we may incur substantial liability and costs. If the use or misuse of our product candidates harm patients, or is perceived to harm patients even when such harm is unrelated to our product candidates, our regulatory approvals could be revoked or otherwise negatively impacted and we could be subject to costly and damaging product liability claims.

We face the risk of incurring liabilities to clinical trial patients if they are injured as a result of their participation in our clinical trials. If any claims are made and if liability can be established, the amount of any liability that we or our affiliates may incur, could exceed any insurance coverage that is in effect, and the amount of the liability could be material to our financial condition.

The use or misuse of our product candidates in clinical trials and the sale of any products for which we obtain marketing approval exposes us to the risk of product liability claims. Product liability claims might be brought against us by consumers, healthcare providers, pharmaceutical companies or others selling or otherwise coming into contact with our products. There is a risk that our product candidates may induce adverse events. If we cannot successfully defend against product liability claims, we could incur substantial liability and costs. In addition, regardless of merit or eventual outcome, product liability claims may result in:

- impairment of our business reputation;
- initiation of investigations by regulators;
- withdrawal of clinical trial participants;
- costs due to related litigation;
- distraction of management’s attention from our primary business;
- substantial monetary awards to patients or other claimants;
- the inability to commercialize our product candidates;
- product recalls, withdrawals or labeling, marketing or promotional restrictions; and
- decreased demand for our product candidates, if approved for commercial sale.

We believe our current product liability insurance coverage is appropriate in light of our clinical programs; however, we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses due to liability. If and when we obtain marketing approval for product candidates, we intend to increase our insurance coverage to include the sale of commercial products; however, we may be unable to obtain product liability insurance on commercially reasonable terms or in adequate amounts. On occasion, large judgments have been awarded in class action lawsuits based on drugs or medical treatments that had unanticipated adverse effects. A successful product liability claim or series of claims brought against us could cause our stock price to decline and, if judgments exceed our insurance coverage, could adversely affect our results of operations and business

Risks Related to our Intellectual Property

Our intellectual property may be insufficient to protect our products.

Our patents and patent applications are directed to compositions of matter, formulations, methods of use and/or methods of manufacturing, as appropriate. In addition to patenting our own technology and that of our subsidiaries, we and our subsidiaries have licensed patents and patent applications for certain stem cell technology, hEPC, and hES cell lines, diagnostic markers, hydrogel technology, and other technology from other companies.

The patent positions of pharmaceutical and biotechnology companies, including ours, are generally uncertain and involve complex legal and factual questions. Our business could be negatively impacted by any of the following:

- the claims of any patents that are issued may not provide meaningful protection, may not provide a basis for commercially viable products or may not provide us with any competitive advantages;
- our patents may be challenged by third parties;
- others may have patents that relate to our technology or business that may prevent us from marketing our product candidates unless we are able to obtain a license to those patents;
- the pending patent applications to which we have rights may not result in issued patents;
- our patents may have terms that are inadequate to protect our competitive position on our products;
- we may not be successful in developing additional proprietary technologies that are patentable.

In addition, others may independently develop similar or alternative technologies, duplicate any of our technologies and, if patents are licensed or issued to us, design around the patented technologies licensed to or developed by us. Moreover, we could incur substantial costs in litigation if we have to defend ourselves in patent lawsuits brought by third parties or if we initiate such lawsuits.

In Europe, there is uncertainty about the eligibility of hES cell subject matter for patent protection. The European Patent Convention prohibits the granting of European patents for inventions that concern “uses of human embryos for industrial or commercial purposes.” A recent decision at the Court of Justice of the European Union interpreted parthenogenetically produced hES cells as patentable subject matter. Consequently, the European Patent Office now recognizes that human pluripotent stem cells (including human ES cells) can be created without a destructive use of human embryos as of June 5, 2003, and patent applications relating to hES cell subject matter with a filing and priority date after that date are no longer automatically excluded from patentability under Article 53 (a) EPC and Rule 28(c) EPC.

In addition, the United States Supreme Court decisions in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.* and *Association for Molecular Pathology v. Myriad Genetics* may limit OncoCyte’s ability to obtain patent protection on diagnostic methods that merely recite a correlation between a naturally occurring event and a diagnostic outcome associated with that event.

If we are unable to obtain and enforce patents and to protect our trade secrets, others could use our technology to compete with us, which could limit opportunities for us to generate revenues by licensing our technology and selling products.

Our success will depend in part on our ability to obtain and enforce patents and maintain trade secrets in the United States and in other countries. If we are unsuccessful at obtaining and enforcing patents, our competitors could use our technology and create products that compete with our products, without paying license fees or royalties to us. The preparation, filing, and prosecution of patent applications can be costly and time consuming. Our limited financial resources may not permit us to pursue patent protection of all of our technology and products in all key markets. Even if we are able to obtain issued patents covering our technology or products, we may have to incur substantial legal fees and other expenses to enforce our patent rights to protect our technology and products from infringing uses. We may not have the financial resources to finance the litigation required to preserve our patent and trade secret rights. Litigation, interferences, oppositions, inter partes reviews or other proceedings are, have been and may in the future be necessary in some instances to determine the validity and scope of certain of our proprietary rights, and in other instances to determine the validity, scope or non-infringement of certain patent rights claimed by third parties to be pertinent to the manufacture, use or sale of our products. This means that patents owned or licensed by us may be lost if the outcome of a proceeding is unfavorable to us.

There is no certainty that our pending or future patent applications will result in the issuance of patents.

Our success depends in part on our ability to obtain and defend patent and other intellectual property rights that are important to the commercialization of our products and product candidates. The degree of patent protection that will be afforded to our products and processes in the U.S. and in other important markets remains uncertain and is dependent upon the scope of protection decided upon by the patent offices, courts, administrative bodies and lawmakers in these countries. We can provide no assurance that we will successfully obtain or preserve patent protection for the technologies incorporated into our products and processes, or that the protection obtained will be of sufficient breadth and degree to protect our commercial interests in all countries where we conduct business. If we cannot prevent others from exploiting our inventions, we will not derive the benefit from them that we currently expect. Furthermore, we can provide no assurance that our products will not infringe patents or other intellectual property rights held by third parties.

In Europe, there is uncertainty about the eligibility of hES cell subject matter for patent protection. The European Patent Convention prohibits the granting of European patents for inventions that concern "uses of human embryos for industrial or commercial purposes." A recent decision at the Court of Justice of the European Union interpreted parthenogenetically produced hES cells as patentable subject matter. Consequently, the European Patent Office now recognizes that human pluripotent stem cells (including human ES cells) can be created without a destructive use of human embryos as of June 5, 2003, and patent applications relating to hES cell subject matter with a filing and priority date after this date are no longer automatically excluded from patentability under Article 53 (a) EPC and Rule 28(c) EPC.

Intellectual property we may develop using grants received from governments are subject to rights maintained by those governments.

Research and development we perform that is funded by grants from government, and any intellectual property that we create using those grants, is subject to certain rights of the government entities to require that we license or grant rights to the intellectual property developed using government funding in certain circumstances.

There is no certainty that we will be able to obtain licenses to intellectual property rights owned by third-parties.

There are no assurances that any of our intellectual property rights will guarantee protection or market exclusivity for our products and product candidates. In such cases, we may need to obtain enabling licenses from third parties to protect our products and product candidates, try to secure market exclusivity or avoid infringing on the intellectual property rights of third parties. If we are unable to fully protect our product candidates or achieve market exclusivity for our products and product candidates, our financial success will be dependent, in part, on our ability to protect and enforce our intellectual property rights, to operate without infringing upon the proprietary rights of others, or, when necessary, our ability to obtain enabling licenses.

If we fail to meet our obligations under license agreements, we may lose our rights to key technologies on which our business depends.

Our business depends on several critical technologies that are based in part on technology licensed from third parties. Those third-party license agreements impose obligations on us, including payment obligations and obligations to pursue development of commercial products under the licensed patents or technology. If a licensor believes that we have failed to meet our obligations under a license agreement, the licensor could seek to limit or terminate our license rights, which could lead to costly and time-consuming litigation and, potentially, a loss of the licensed rights. During the period of any such litigation, our ability to carry out the development and commercialization of potential products, and our ability to raise any capital that we might then need, could be significantly and negatively affected. If our license rights were restricted or ultimately lost, we would not be able to continue to use the licensed technology in our business.

Risks Related to our Dependence on Third Parties

Asterias could lose its CIRM grant if Asterias fails to meet the clinical trial milestones that are a condition to CIRM's obligation to provide funding.

Asterias depends on its grant from CIRM as a source of financing for the costs of conducting its Phase I/IIa clinical trial and process development of AST-OPC1. Under the terms of the CIRM grant, Asterias must meet certain efficacy and progress milestones pertaining to the clinical trial. If Asterias fails to meet any of the milestones within the specified time frame, CIRM may discontinue providing grant funds to Asterias, which could force Asterias to postpone, delay, or discontinue the clinical trial and development work for the product.

We may become dependent on possible future collaborations to develop and commercialize many of our product candidates and to provide the regulatory compliance, sales, marketing and distribution capabilities required for the success of our business.

We may enter into various kinds of collaborative research and development and product marketing agreements to develop and commercialize our products. The expected future milestone payments and cost reimbursements from collaboration agreements could provide an important source of financing for our research and development programs, thereby facilitating the application of our technology to the development and commercialization of our products, but there are risks associated with entering into collaboration arrangements.

There is a risk that we could become dependent upon one or more collaborative arrangements. A collaborative arrangement upon which we might depend might be terminated by our collaboration partner or a partner might determine not to actively pursue the development or commercialization of our products. A collaboration partner also may not be precluded from independently pursuing competing products and drug delivery approaches or technologies.

There is a risk that a collaboration partner might fail to perform its obligations under the collaborative arrangements or may be slow in performing its obligations. In addition, a collaboration partner may experience financial difficulties at any time that could prevent it from having available funds to contribute to the collaboration. If a collaboration partner fails to conduct its product development, commercialization, regulatory compliance, sales and marketing or distribution activities successfully and in a timely manner, or if it terminates or materially modifies its agreements with us, the development and commercialization of one or more 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.

We do not have the ability to independently conduct clinical trials required to obtain regulatory approvals for our product candidates.

We will need to rely on third parties, such as contract research organizations, data management companies, contract clinical research associates, medical institutions, clinical investigators and contract laboratories to conduct any clinical trials that we may undertake for our products. We may also rely on third parties to assist with our preclinical development of product candidates. If we outsource clinical trials we may be unable to directly control the timing, conduct and expense of our clinical trials. If we enlist third parties to conduct clinical trials and they fail to successfully carry out their contractual duties or regulatory obligations or fail to meet expected deadlines, if the third parties need to be replaced or if the quality or accuracy of the data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for other reasons, our preclinical development activities or clinical trials may be extended, delayed, suspended or terminated, and we may not be able to obtain regulatory approval for or successfully commercialize our product candidates.

We may need to rely on marketing partners or contract sales companies.

If we are able to develop our products and obtain necessary regulatory approvals, we may choose to partner on one or more products for marketing, selling or distributing our products. If we do not partner for commercial services, we and our subsidiaries will be dependent on our ability to build our own marketing and distribution capability for our new products, which would require the investment of significant financial and management resources, or we will need to find collaborative marketing partners or sales representatives, or wholesale distributors for the commercial sale of our products.

If we market products through arrangements with third parties, we may pay sales commissions to sales representatives or we may sell or consign products to distributors at wholesale prices. As a result, our gross profit from product sales may be lower than it would be if we were to sell our products directly to end users at retail prices through our own sales force. There can be no assurance we will able to negotiate distribution or sales agreements with third parties on favorable terms to justify our investment in our products or achieve sufficient revenues to support our operations.

Risks Related to Our Affiliates

Delays in the successful completion of the clinical validation study and commercialization of *DetermaVu*™ would negatively affect OncoCyte's business operations.

OncoCyte is experiencing a delay in conducting the clinical validation study of its confirmatory lung cancer diagnostic text *DetermaVu*™. During the process of running initial blood samples for the *DetermaVu*™ clinical validation study, inconsistent analytic results were observed. OncoCyte believes that the cause was a variance in a recently received lot of consumables used in the processing equipment that analyzes blood samples. OncoCyte anticipates that completion of the clinical validation study necessary for the commercial launch of *DetermaVu*™ will be delayed into the fourth quarter of 2018, subject to the successful rectification of the cause of the inconsistent analytic results. Clinical validation studies can fail for a variety of reasons. Accordingly, a resolution of the issue that caused the inconsistent analytic results that was observed will not necessarily assure a successful outcome of the clinical validation study of *DetermaVu*™.

It is not yet known whether OncoCyte will be able to resolve the issue that has caused the delay in the clinical validation study or whether a successful resolution will result in additional costs to OncoCyte, other than a loss of productivity during the period of the delay. There is a risk that OncoCyte could incur additional quality control and analytic platform related costs on an ongoing basis in conducting *DetermaVu*™ tests if the issue is resolved and the test is commercialized. OncoCyte is also considering changing analytic platforms, which would entail the incurrence of additional cost and delay in acquiring the new analytic equipment and reagents from a different manufacturer, training OncoCyte personnel in the use of the new platform, and re-testing clinical blood samples to validate or adjust the algorithm and to validate, if feasible, the past results of OncoCyte's previous research and development studies before undertaking the clinical validation study on the new platform. There is no assurance that OncoCyte will be able to replicate its past research and development study results on a new analytic platform, or that if those results are replicated that the results of its clinical validation study will support commercialization of *DetermaVu*™.

Delays in the successful completion of the clinical validation study and commercialization of *DetermaVu*™ could prevent OncoCyte from raising, when needed, sufficient additional capital to finance its operations, including completion of development and commercial launch of *DetermaVu*™ or the other cancer diagnostic tests that it is developing.

The FDA may impose additional regulations for laboratory developed tests such as the ones OncoCyte is developing.

The FDA issued two draft guidance documents and a discussion paper that set forth a proposed risk-based regulatory framework that would apply varying levels of FDA oversight to LDTs such as those OncoCyte is developing. If the FDA implements the new regulatory measures set forth in these documents:

- OncoCyte may be required to obtain pre-market clearance or approval before selling its diagnostic tests;
- As a result of required FDA pre-market review, OncoCyte's tests may not be cleared or approved on a timely basis, if at all;
- FDA labeling requirements may limit OncoCyte's claims about its diagnostic tests, which may have a negative effect on orders from physicians;
- The regulatory approval process may involve, among other things, successfully completing additional clinical trials and making a 510(k) submission, or filing a pre-market approval application with the FDA; and,
- If regulatory actions affect any of the reagents OncoCyte obtain from suppliers and use in conducting its tests, its business could be adversely affected in the form of increased costs of testing or delays, limits or prohibitions on the purchase of reagents necessary to perform its testing.

OncoCyte will depend on Medicare and a limited number of private payers for a significant portion of its revenues, and its revenues could decline if these payers fail to provide timely and adequate payment for its diagnostic tests.

OncoCyte expects that a substantial portion of the patients for whom it will perform diagnostic tests will have Medicare as their primary medical insurance. Even if OncoCyte's planned tests are otherwise successful, reimbursement for the Medicare-covered portions of its planned tests might not, without Medicare reimbursement, produce sufficient revenues to enable it to reach profitability and achieve its other commercial objectives. It generally takes two to three years to obtain Medicare coverage and other third party reimbursement approvals for a new LDT and there can be no assurance OncoCyte will obtain such approvals for any of the cancer diagnostics that it is developing. Until a new cancer diagnostic test is accepted by third party payers for reimbursement, OncoCyte will have to market the test to physicians on a patient pay basis. In the absence of reimbursement by Medicare, patients who would be candidates for the use of OncoCyte's diagnostic tests and who rely on Medicare coverage may decline to use those tests, and physicians may be reluctant to prescribe the tests, due to the cost of the test to the patients. Because of this patient cost factor, revenues from any new cancer test that OncoCyte markets will experience slow growth until the test is approved for reimbursement in an amount commensurate with the cost to the patient.

Medicare and other third-party payers may change their coverage policies or cancel future contracts with OncoCyte at any time; review and adjust the rate of reimbursement; or stop paying for OncoCyte's tests altogether, which would reduce OncoCyte's total revenues. Payers have increased their efforts to control the cost, utilization, and delivery of health care services, and have undertaken measures to reduce payment rates for and decrease utilization of clinical laboratory testing. Because of the cost-trimming trends, any third-party payers that will cover and provide reimbursement for diagnostic tests may suspend, revoke or discontinue coverage at any time, or may reduce the reimbursement rates payable to OncoCyte. Any such action could have a negative impact on OncoCyte's revenues, which may have a material adverse effect on its financial condition, results of operations and cash flows.

Changes in healthcare laws and policies may have a material adverse effect on OncoCyte's financial condition, results of operations and cash flows.

The ACA substantially changed the way health care is financed by both governmental and private insurers. Among the ACA's key changes, the ACA reduced payment rates under the Medicare Clinical Laboratory Fee Schedule and established an Independent Payment Advisory Board to reduce the per capita rate of growth in Medicare spending if spending exceeds a target growth rate. Such provisions may negatively impact payment rates for OncoCyte's diagnostic tests. The new U.S. presidential administration has identified repealing and replacing the ACA as a priority. On March 6, 2017, the American Health Care Act ("AHCA") was introduced as the new administration's proposed replacement of ACA. The timing and method of repeal of ACA and adoption of the AHCA remains uncertain, but impending changes will likely impact the number of patient lives covered, the quality of the insurance, Medicaid eligibility and the level of patient protections provide.

The Protecting Access to Medicare Act of 2014 ("PAMA") significantly altered the payment methodology under the Clinical Laboratory Fee Schedule that determines Medicare coverage for laboratory tests. Under PAMA, clinical laboratories are required to report test payment data for each Medicare-covered clinical diagnostic lab test and beginning in 2017, the Medicare payment rate for each clinical diagnostic lab test will be equal to the weighted median amount for the test from the most recent data collection period.

Congress has proposed on several occasions to impose a 20% coinsurance payment requirement on patients for clinical laboratory tests reimbursed under the Medicare Clinical Laboratory Fee Schedule, which would require OncoCyte to bill patients for these amounts. In the event that Congress were to ever enact such legislation, the cost of billing and collecting for OncoCyte's tests could often exceed the amount actually received from the patient.

Beginning January 1, 2017, Medicare payment for any new advanced diagnostic test will be based on the list price or charge. After the test is commercially available for three quarters, the laboratory will be required to report payment and volume information and that data will be used to set payment for the test for the following year.

- If data shows that the list price was greater than 130% of the payment using established methodology (a weighted median), CMS will recoup the difference from the laboratory through a payment claw back.

- Payment will be updated annually based on the weighted median of commercial payer reimbursement.

We cannot predict whether future health care initiatives will be implemented at the federal or state level, or how any future legislation or regulation may affect OncoCyte. The expansion of government's role in the U.S. health care industry as a result of the ACA, and changes to the reimbursement amounts paid by Medicare and other payers for diagnostic tests may have a materially adverse effect on OncoCyte's business, financial condition, results of operations and cash flows.

Because of certain Medicare billing policies, OncoCyte may not receive complete reimbursement for tests provided to Medicare patients.

Medicare has coverage policies that can be national or regional in scope. Coverage means that the test or assay is approved as a benefit for Medicare beneficiaries. If there is no coverage, neither the supplier nor any other party, such as a diagnostic laboratory, may receive reimbursement from Medicare for the service. Regional policies are directed by Medicare's regional Medicare Administrative Contractors ("MACs"). Reimbursement for diagnostic testing may be negatively impacted by California MAC policies.

Long payment cycles of Medicare, Medicaid and other third-party payors, or other payment delays, could hurt OncoCyte's cash flows and increase its need for working capital.

Medicare and Medicaid have complex billing and documentation requirements that OncoCyte will have to satisfy in order to receive payment. Failure to comply with these requirements and other laws applicable to billing may result in, among other things, non-payment, refunds, exclusion from government healthcare programs, and civil or criminal liabilities, any of which may have a material adverse effect on OncoCyte's revenues and earnings. Similarly, the failure of private health insurers or other private third-party payers to properly process OncoCyte's payment claims in a timely manner could delay its receipt of payment for its diagnostic tests and services, which may have a material adverse effect on its cash flows.

Private health insurance company policies may deny coverage or limit the amount they will reimburse OncoCyte for the performance of its diagnostic tests.

Patients who are not covered by Medicare will generally rely on health insurance provided by private health insurance companies. If OncoCyte is considered a "non-contracted provider" by a third-party payer, that payer may not reimburse patients for diagnostic tests performed by OncoCyte or doctors within the payer's network of covered physicians may not use its services to perform diagnostic tests for their patients. As a result, OncoCyte may need to enter into contracts with health insurance companies or other private payers to provide diagnostic tests to their insured patients at specified rates of reimbursement which may be lower than the rates OncoCyte might otherwise collect.

Risks Pertaining to Our Common Shares

The market price of our common shares may be impacted if we spinoff AgeX.

Our Board of Directors has initiated plans for BioTime to distribute to our shareholders, on a pro rata basis, all or a portion of the AgeX common stock we hold. We expect that after the distribution the AgeX shares will be publicly traded but we cannot assure that a public market for AgeX shares will develop or be sustained or that the prices at which the AgeX shares may trade will reflect the actual value of AgeX's business, assets, and prospects. If the distribution is completed, the market price of BioTime common shares should decline by an amount that reflects the market value of the AgeX shares distributed, but it is not possible to predict the actual market value of AgeX shares or the exact amount of the initial reduction in the BioTime share price, and it is possible that the change in price might be greater than the price at which the AgeX shares received by our shareholders in the distribution will trade in the public market. Accordingly, there is a risk that if the distribution is effected, after the distribution the combined market value of BioTime shareholders' BioTime common shares and the AgeX common stock the shareholders receive in the distribution could be less than the market value of the BioTime common shares immediately before the distribution.

Further, if the distribution of AgeX shares occurs before the October 1, 2018 expiration date of our outstanding, publicly traded, common share purchase warrants, we will be required by the warrant agreement to reduce the exercise price of the warrants and increase the number of shares that may be purchased through the exercise of the warrants based on the fair market value of the distributed AgeX shares as determined by our Board of Directors. The impact of those adjustments could have a dilutive effect on the interests of holders of our common shares, depending on the value of the AgeX shares and the relationship between the reduced exercise price of the warrants and the prices at which our common shares trade after the exercise price reduction.

The implementation of a new FASB accounting standard could increase the risk that our future consolidated financial statements could be qualified by going concern uncertainty.

In August 2014, the FASB issued ASU No. 2014-15, "*Presentation of Financial Statements-Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern.*" ASU No. 2014-15 defines management's responsibility to assess an entity's ability to continue as a going concern, and to provide related footnote disclosures. ASU No. 2014-15 was effective for us for the year ended December 31, 2016, and all annual and interim periods thereafter. In connection with preparing consolidated financial statements for each annual and interim reporting period, ASU No. 2014-15 requires that an entity's management evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the entity's ability to continue as a going concern within one year after the date that the consolidated financial statements are issued (or within one year after the date that the consolidated financial statements are available to be issued when applicable). As a result of the implementation of ASU No. 2014-15, we will be required to have more cash, cash equivalents, and liquid investments on hand on the date we issue or file our consolidated financial statements than had been the case during prior years in order to avoid a going concern qualification in our auditor's report and in the footnotes to our consolidated financial statements. If our consolidated financial statements were to become subject to a going concern qualification or uncertainty or if we are unable to alleviate substantial doubt as part of our going concern assessment, or both, the market price of our common stock could decline.

Asterias and OncoCyte are also be impacted by ASU No. 2014-15 in much the same manner as us. If the financial statements of Asterias, or OncoCyte, or both, were to become subject to a going concern qualification or uncertainty, the market price of their common stock could decline, resulting in a loss or decline in value of the Asterias shares we own, the OncoCyte shares we own, or both, as equity method investments at fair value.

Our net income or loss will be impacted by changes in the market value of Asterias and OncoCyte common stock.

Because we use the equity method of accounting for the common stock of Asterias and OncoCyte that we hold at fair value, we will recognize gain or loss to the extent that the market value of Asterias and OncoCyte common stock changes from calendar quarter to calendar quarter, regardless of whether we sell any of those shares.

Because we are engaged in the development of pharmaceutical and stem cell therapy products and cancer diagnostic tests, the price of our common shares may rise and fall rapidly.

- The market price of our common shares, like that of the shares of many biotechnology companies, has been highly volatile.
- The price of our common shares may rise rapidly in response to certain events, such as the commencement of clinical trials of an experimental new therapy or diagnostic test, even though the outcome of those trials and the likelihood of ultimate FDA approval of a therapeutic product remain uncertain.
- Similarly, prices of our common shares may fall rapidly in response to certain events such as unfavorable results of clinical trials or a delay or failure to obtain FDA approval.
- The failure of our earnings to meet analysts' expectations could result in a significant rapid decline in the market price of our common shares.

Current economic and stock market conditions may adversely affect the price of our common shares.

The stock market has been experiencing extreme price and volume fluctuations which have affected the market price of the equity securities without regard to the operating performance of the issuing companies. Broad market fluctuations, as well as general economic and political conditions, may adversely affect the market price of our common shares.

Because we do not pay dividends, our common shares may not be a suitable investment for anyone who needs to earn dividend income.

We do not pay cash dividends on our common shares. For the foreseeable future, we anticipate that any earnings generated in our business will be used to finance the growth of our business and will not be paid out as dividends to holders of our common shares. This means that our common shares may not be a suitable investment for anyone who needs to earn income from their investments.

Insiders continue to have substantial control over our company, which could limit your ability to influence the outcome of key transactions, including a change of control.

Our directors, executive officers and each of our shareholders who own greater than 5% of our outstanding common stock and their affiliates, in the aggregate, owned approximately 31% of the outstanding shares of our common stock as of December 31, 2017. As a result, these shareholders, if acting together, will be able to influence or control matters requiring approval by our shareholders, including the election of directors and the approval of mergers, acquisitions or other extraordinary transactions. They may also have interests that differ from yours and may vote in a way with which you disagree and which may be adverse to your interests. This concentration of ownership may have the effect of delaying, preventing or deterring a change of control of our company, could deter certain public investors from purchasing our common stock and might ultimately affect the market price of our common stock.

Securities analysts may not initiate coverage or continue to cover our common shares and this may have a negative impact on the market price of our common shares.

The trading market for our common shares will depend, in part, on the research and reports that securities analysts publish about our business and our common shares. We do not have any control over these analysts. There is no guarantee that securities analysts will cover our common shares. If securities analysts do not cover our common shares, the lack of research coverage may adversely affect the market price of those shares. If securities analysts do cover our common shares, they could issue reports or recommendations that are unfavorable to the price of our common shares, and they could downgrade a previously favorable report or recommendation, and in either case our share prices could decline as a result of the report. If one or more of these analysts does not initiate coverage, ceases to cover our common shares or fails to publish regular reports on our business, we could lose visibility in the financial markets, which could cause our share prices or trading volume to decline.

If we or our subsidiaries issue additional common shares or preferred shares, investors in our common shares may experience dilution of their ownership interests.

We and our subsidiaries may issue additional common shares or other securities that are convertible into or exercisable for common shares in order to raise additional capital, or in connection with hiring or retaining employees or consultants, or in connection with future acquisitions of licenses to technology or rights to acquire products, or in connection with future business acquisitions, or for other business purposes. The future issuance of any such additional common shares or other securities may be dilutive to our current shareholders and may create downward pressure on the trading price of our common shares.

We plan to ask our shareholders approve an increase in the number of our authorized shares to make available for issues a sufficient number of additional shares to meet our financing needs. We are currently authorized to issue an aggregate of 152,000,000 shares of capital stock consisting of 150,000,000 common shares and 2,000,000 “blank check” preferred shares. As of December 31, 2017, there were 126,865,634 issued and outstanding common shares, 8,043,229 common shares reserved for issuance upon the exercise of outstanding options under our employee stock option plans; 62,500 common shares reserved for issuance upon the lapse of restricted stock units (RSUs) under our Equity Incentive Plan; and 9,394,862 shares reserved for issuance upon the exercise of common share purchase warrants, including the publicly traded warrants.

The operation of some of our subsidiaries has been financed in part through the sale of capital stock in those subsidiaries to private investors. Sales of additional subsidiary shares could reduce our ownership interest in the subsidiaries, and correspondingly dilute our shareholder’s ownership interests in our consolidated enterprise. Our subsidiaries also have their own stock option plans and the exercise of subsidiary stock options or the sale of restricted stock under those plans would also reduce our ownership interest in the subsidiaries, with a resulting dilutive effect on the ownership interest of our shareholders in our consolidated enterprise.

We may also issue preferred shares having rights, preferences, and privileges senior to the rights of our common shares with respect to dividends, rights to share in distributions of our assets if we liquidate our company, or voting rights. Any preferred shares may also be convertible into common shares on terms that would be dilutive to holders of common shares. Our subsidiaries may also issue their own preferred shares with a similar dilutive impact on our ownership of the subsidiaries.

The market price of our common shares could be impacted by prices at which we sell shares in our subsidiaries.

The operation of some our subsidiaries has been financed in part through the sale of capital stock in those subsidiaries, and our subsidiaries may sell shares of their capital stock in the future for financing purposes. The prices at which our subsidiaries may sell shares of their capital stock could impact the value of our company as a whole and could impact the price at which our common shares trade in the market. A sale of capital stock of one of our subsidiaries at a price that the market perceives as low could adversely impact the market price of our common shares. Even if our subsidiaries sell their capital stock at prices that reflect arm’s length negotiation with investors, there is no assurance that those prices will reflect a true fair market value or that the ascribed value of the subsidiaries based on those share prices will be fully reflected in the market value of our common shares.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None

ITEM 2. PROPERTIES

Biotime Facilities

Our principal offices and laboratory facilities comprise 30,795 square feet of rentable space in two buildings located in an office park setting at 1010 and 1020 Atlantic Avenue, in Alameda, California. AgeX, ReCyte Therapeutics, OrthoCyte, and OncoCyte share this space with us and it is where OncoCyte plans to operate its CLIA lab.

Base rent during the initial seven-year term of the lease, which commenced on February 1, 2016 is shown in the following table:

Lease Year	Annual Base Rent	Monthly Installment of Base Rent
2017	$ 776,034	$ 64,669
2018	$ 798,206	$ 66,517
2019	$ 824,074	$ 68,672
2020	$ 846,246	$ 70,520
2021	$ 872,114	$ 72,676
2022	$ 897,982	$ 74,831
2023[(1)]	$ 927,545	$ 77,295

(1) Lease term expires on January 31, 2023.

In addition to base rent, we will pay a pro rata portion of increases in certain expenses, including real property taxes, utilities (to the extent not separately metered to our leased space) and the landlord's operating expenses, over the amounts of those expenses incurred by the landlord.

We also currently pay $5,050 per month for the use of approximately 900 square feet of office space in New York City, which is made available to us by one of our directors at his cost for use in conducting meetings and other business affairs.

Cell Cure Facilities

Cell Cure has leased 1,128 square meters (approximately 12,142 square feet) of office and laboratory space in Jerusalem, Israel under leases that expire between May 30, 2019 and December 31, 2020, with two additional options to extend the leases for 5 years each. Base monthly rent is NIS 63,402 (approximately US $18,247 per month using the December 31, 2017 exchange rate). In addition to base rent, Cell Cure pays a pro rata share of real property taxes and certain costs related to the operation and maintenance of the building in which the leased premises are located.

On January 28, 2018, Cell Cure entered into another lease agreement with its current landlord for an additional 934 square meters (approximately 10,054 square feet) of office space in the same facility in Jerusalem, Israel under a lease that expires on December 31, 2025, with two additional options to extend the lease for 5 years each ("the January 2018 Lease"). The January 2018 Lease will commence on April 1, 2018, and includes a leasehold improvement construction allowance of up to NIS 4,000,000 (approximately up to $1.2 million) from the landlord. The leasehold improvements are expected to be completed by September 30, 2018. Combined base rent and construction allowance payments for the January 2018 Lease, assuming full utilization of the construction allowance, will be NIS 93,470 per month (approximately $27,000 per month) beginning on October 1, 2018.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we and our subsidiaries may be involved in routine litigation incidental to the conduct of our business. We are not presently a party to any pending litigation. Cell Cure was a party to two pending opposition proceedings in the European Patent Office (EPO) involving EP Patent Numbers 2147094 (issued 08-Oct-2014) and 2554661 (issued 19-Nov-2014), both entitled, "Stem Cell-Derived Retinal Pigment Epithelial Cells". The Oral Proceedings took place on March 16, 2017 and March 17, 2017, respectively. Both patents were upheld by the EPO. The decisions were both appealed and the detailed grounds for appeal were due on September 9, 2017 and September 11, 2017, respectively, however, both appeals were withdrawn prior to those dates and the patents will be issued as amended in the opposition proceedings. Both patents relate to our *OpRegen*® product and provide protection until April 2028. There are additional patent applications pending that if issued will provide further protection for *OpRegen*®.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable

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

Our common shares are traded on the NYSE American and on the TASE under the ticker symbol BTX. The following table sets forth the range of high and low closing prices for our common shares for the fiscal years ended December 31, 2016 and 2017, as reported by the NYSE American:

Quarter Ended	High	Low
March 31, 2016	$ 3.68	$ 2.08
June 30, 2016	$ 3.25	$ 2.29
September 30, 2016	$ 3.97	$ 2.70
December 31, 2016	$ 3.89	$ 2.89
March 31, 2017	$ 3.73	$ 2.88
June 30, 2017	$ 3.44	$ 2.94
September 30, 2017	$ 3.15	$ 2.51
December 31, 2017	$ 2.84	$ 2.15

As of February 28, 2018, there were 16,866 holders of the common shares based on the share position listing.

The following table shows certain information concerning the options outstanding and available for issuance under all of our compensation plans and agreements as of December 31, 2017 (in thousands, except weighted average exercise prices):

Plan Category	Number of Shares to be Issued upon Exercise of Outstanding Options and Vesting of Restricted Stock Units, and Rights	Weighted Average Exercise Price of the Outstanding Options, and Rights	Number of Shares Remaining Available for Future Issuance under Equity Compensation Plans
BioTime Equity Compensation Plans Approved by Shareholders [1]	8,105[1]	$ 3.38	2,485

(1) Includes 62,000 outstanding Restricted Stock Units, or RSUs.

The following table shows certain information concerning the options outstanding and available for issuance under all of the compensation plans and agreements for our consolidated subsidiary companies as of December 31, 2017 (in thousands, except weighted average exercise price per share):

	Number of Shares to be Issued upon Exercise of Outstanding Options and Rights	Weighted Average Exercise Price of the Outstanding Options, and Rights	Number of Shares Remaining Available for Future Issuance under Equity Compensation Plans
AgeX Equity Compensation Plans Approved by Shareholders [1]	1,239	$ 2.00	2,761
OrthoCyte Equity Compensation Plans Approved by Shareholders [1]	1,249	$ 0.06	2,700
ReCyte Therapeutics Equity Compensation Plans Approved by Shareholders [1]	1,199	$ 2.05	2,800
BioTime Asia Equity Compensation Plans Approved by Shareholders [1]	300	$ 0.01	1,300
Cell Cure Compensation Plans Approved by Shareholders [1] [2]	81	$ 40.0	38
LifeMap Sciences Equity Compensation Plans Approved by Shareholders [1]	904	$ 1.49	1,437

(1) BioTime is, directly or through one or more subsidiaries, the majority shareholder.

(2) Cell Cure Share Option Plan US dollar exercise price shown is approximated based on the conversion rate between the US dollar and the New Israeli Shekel, NIS, at the time of grant. The exercise price is denominated in NIS and is NIS 154 per share.

Additional information concerning our 2012 Equity Incentive Plan may be found in Note 11 to the Consolidated Financial Statements included elsewhere in this Report.

Dividend Policy

We have never paid cash dividends on our common shares and we do not anticipate paying cash dividends in the foreseeable future, but intend to retain our capital resources for reinvestment in our business. Any future determination to pay cash dividends on our common shares will be at the discretion of our Board of Directors and will be dependent upon our financial condition, results of operations, capital requirements and other factors as the Board of Directors deems relevant.

We have in the past distributed common stock of a subsidiary to our shareholders, on a pro rata basis, as a dividend in kind. We may distribute shares of subsidiaries or affiliated companies again in the future and any such distribution will be at the discretion of our Board of Directors and will be dependent upon our financial condition, results of operations, capital requirements, income tax consequences, and other factors as the Board of Directors deems relevant.

Performance Measurement Comparison[1]

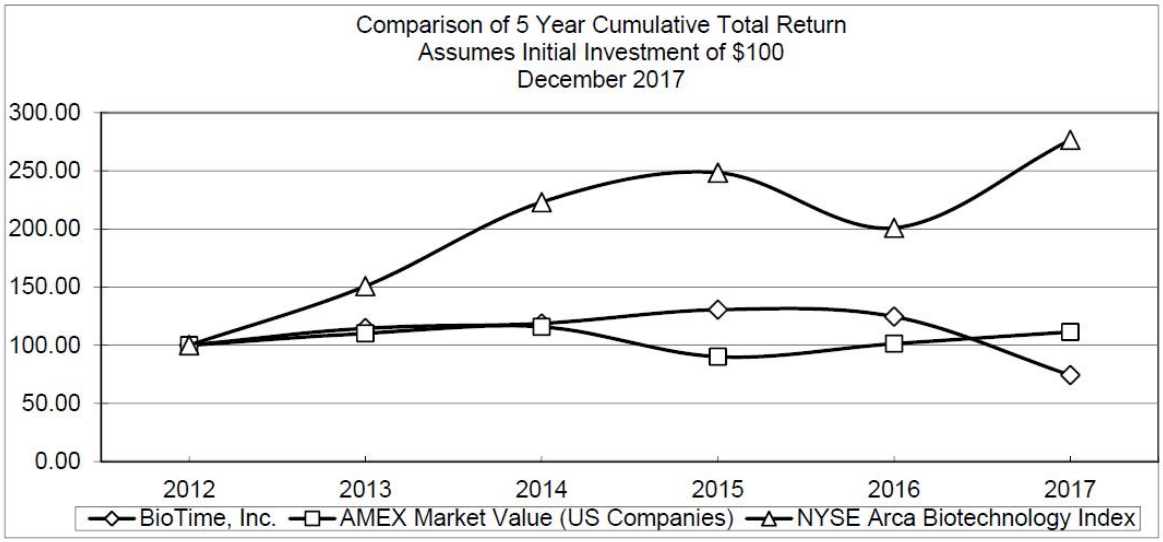
The following graph compares total stockholder returns of BioTime, Inc. for the last five fiscal years beginning December 31, 2011 to two indices: the NYSE Amex Market Value – U.S. Companies (Amex Market Value) and the NYSE Arca Biotechnology Index (NYSE Arca Biotechnology Index). The total return for our stock and for each index assumes the reinvestment of dividends, although we have never declared dividends on BioTime stock, and is based on the returns of the component companies weighted according to their capitalizations as of the end of each quarterly period. The NYSE Amex Market Value tracks the aggregate price performance of equity securities of U.S. companies listed therein. The NYSE Arca Biotechnology Index represents biotechnology companies, trading on NYSE American under the Standard Industrial Classification (SIC) Code Nos. 283 (Drugs) and 382 (Laboratory Apparatus and Analytical, Optical) main categories (2834: Pharmaceutical Preparations; 2835: Diagnostic Substances; 2836: Biological Products; 3826: Laboratory Analytical Instruments; and 3829: Measuring & Controlling Devices). BioTime common stock trades on the NYSE American and is a component of the NYSE Amex Market Value – US Companies.

Comparison of Five-Year Cumulative Total Return on Investment

		2012	2013	2014	2015	2016	2017
BioTime, Inc.	Return %		14.65	3.61	9.92	-4.53	-40.44
	Cum $	100.00	114.65	118.79	130.57	124.65	74.24
AMEX Market Value (US Companies)	Return %		10.25	5.09	-22.23	12.45	9.99
	Cum $	100.00	110.25	115.87	90.11	101.33	111.45
NYSE Arca Biotechnology Index	Return %		50.80	47.91	11.39	-19.15	37.69
	Cum $	100.00	150.80	223.06	248.47	200.89	276.61

(1) This Section is not "soliciting material," is not deemed "filed" with the SEC and is not to be incorporated by reference in any filing of BioTime under the Securities Act of 1933, or the Securities Exchange Act of 1934, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing. Shows the cumulative total return on investment assuming an investment of $100 in each of BioTime, Inc., the Amex Market Value and the NYSE Arca Biotechnology Index on December 31, 2012. The cumulative total return on BioTime common shares has been computed based on a price of $3.14 per share, the price at which BioTime's common shares closed on December 31, 2012.

BioTime, Inc., the Amex Market Value and NYSE Arca Biotechnology Index



ITEM 6. SELECTED FINANCIAL DATA

BIOTIME, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
(IN THOUSANDS, EXCEPT PER SHARE DATA)

	Year Ended December 31,				
REVENUES:	**2017**	**2016**	**2015**	**2014**	**2013**
Grant revenue	$ 1,666	$ 3,671	$ 4,502	$ 3,297	$ 1,573
Royalties from product sales and license fees	389	544	719	398	367
Subscription and advertisement	1,395	972	1,357	1,173	2,218
Sales of research products and services	8	736	458	376	276
Total revenues	3,458	5,923	7,036	5,244	4,434
Cost of sales	(168)	(358)	(1,107)	(837)	(793)
Gross profit	3,290	5,565	5,929	4,407	3,641
OPERATING EXPENSES:					
Research and development	(24,024)	(36,106)	(42,604)	(37,533)	(26,609)
Acquired in-process research and development [(1)]	-	-	-	-	(17,459)
General and administrative	(19,922)	(28,426)	(29,134)	(17,556)	(15,559)
Total operating expenses	(43,946)	(64,532)	(71,738)	(55,089)	(59,627)
Gain on sale of assets	1,754	-	-	-	-
Loss from operations	(38,902)	(58,967)	(65,809)	(50,682)	(55,986)
OTHER INCOME/(EXPENSES):					
Interest expense, net	(692)	(747)	(340)	(89)	-
BioTime's share of losses and impairment in equity method investment in Ascendance	-	(4,671)	(35)	-	-
Gain on deconsolidation OncoCyte	71,697	-	-	-	-
Gain on deconsolidation of Asterias	-	49,048	-	-	-
Loss on equity method investment in OncoCyte at fair value	(2,935)	-	-	-	-
Gain (loss) on equity method investment in Asterias at fair value	(51,107)	34,361	-	-	-
Loss on extinguishment of related party convertible debt	(2,799)	-	-	-	-
Gain on investment	-	-	3,694	-	-
Other income/(expense), net	1,449	(403)	(160)	(384)	(204)
Total other income/(expenses), net	15,613	77,588	3,159	(473)	(204)
INCOME (LOSS) BEFORE INCOME TAX BENEFIT	(23,289)	18,621	(62,650)	(51,155)	(56,190)
Deferred income tax benefit	-	-	4,516	7,376	3,281
NET INCOME (LOSS)	(23,289)	18,621	(58,134)	(43,779)	(52,909)
Net loss attributable to noncontrolling interest	3,313	14,951	11,143	7,367	9,026
NET INCOME (LOSS) ATTRIBUTABLE TO BIOTIME, INC.	(19,976)	33,572	(46,991)	(36,412)	(43,883)
Dividends on preferred shares	-	-	(415)	(87)	-
NET INCOME (LOSS) ATTRIBUTABLE TO BIOTIME, INC. COMMON SHAREHOLDERS	$ (19,976)	$ 33,572	$ (47,406)	$ (36,499)	$ (43,883)
NET INCOME (LOSS) PER COMMON SHARE					
BASIC	$ (0.17)	$ 0.35	$ (0.59)	$ (0.55)	$ (0.81)
DILUTED	$ (0.17)	$ 0.34	$ (0.59)	$ (0.55)	$ (0.81)
WEIGHTED AVERAGE NUMBER OF COMMON SHARES OUTSTANDING:					
BASIC	114,476	97,316	79,711	66,467	54,226
DILUTED	114,476	99,553	79,711	66,467	54,226

(1) Represents the value of incomplete research and development projects acquired by Asterias from Geron Corporation under an Asset Contribution Agreement.

	December 31,				
	2017[1]	2016[2]	2015	2014	2013
Consolidated Balance Sheet Data (in thousands):					
Cash and cash equivalents	$ 36,838	$ 22,088	$ 42,229	$ 29,487	$ 5,495
Total assets	173,241	142,572	94,660	74,901	57,730
Total liabilities	8,978	12,064	18,213	12,178	15,467
Accumulated deficit	(216,297)	(196,321)	(229,893)	(182,190)	(145,778)
Total shareholder's equity	$ 164,263	$ 130,508	$ 76,447	$ 62,723	$ 42,262

(1) Reflects the effect of the OncoCyte Deconsolidation that occurred on February 17, 2017. See Notes 3 and 4 to our consolidated financial statements included elsewhere in this Report.

(2) Reflects the effect of the Asterias Deconsolidation that occurred on May 13, 2016. See Notes 3 and 5 to our consolidated financial statements included elsewhere in this Report.

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

The following Management's Discussion and Analysis of Financial Condition and Results of Operations is intended to provide information necessary to understand our audited consolidated financial statements for the three-year period ended December 31, 2017, and highlight certain other information which, in the opinion of management, will enhance a reader's understanding of our financial condition, changes in financial condition and results of operations. In particular, the discussion is intended to provide an analysis of significant trends and material changes in our financial position and the operating results of our business during the year ended December 31, 2017 as compared to the year ended December 31, 2016, and during the year ended December 31, 2016 as compared to the year ended December 31, 2015. This discussion should be read in conjunction with our consolidated financial statements for the three-year period ended December 31, 2017 and related notes included elsewhere in this Annual Report on Form 10-K. These historical financial statements may not be indicative of our future performance. This Management's Discussion and Analysis of Financial Condition and Results of Operations contains a number of forward-looking statements, all of which are based on our current expectations and could be affected by the uncertainties and risks described throughout this Report, particularly in "Item 1A. Risk Factors."

Critical Accounting Policies

The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States ("GAAP") requires management to make estimates and assumptions that affect the reported amounts in our consolidated financial statements and related notes. Our significant accounting policies are described in Note 2 to our consolidated financial statements included elsewhere in this Report. We have identified below our critical accounting policies and estimates that we believe require the greatest amount of judgment. On an ongoing basis, we evaluate estimates which are subject to significant judgment, including those related to going concern assessment of our consolidated financial statements, useful lives associated with long-lived assets, including evaluation of asset impairment, allowances for uncollectible accounts receivables, valuing shares owned in nonconsolidated companies using the equity method of accounting, loss contingencies, deferred income taxes and tax reserves, including valuation allowances related to deferred income taxes, and assumptions used to value stock-based awards, debt or other equity instruments. Actual results could differ materially from those estimates. On an ongoing basis, we evaluate our estimates compared to historical experience and trends which form the basis for making judgments about the carrying value of assets and liabilities. To the extent that there are material differences between our estimates and our actual results, our future financial statement presentation, financial condition, results of operations and cash flows will be affected.

We believe the assumptions and estimates associated with the following have the greatest potential impact on our consolidated financial statements.

Going concern assessment – With the implementation of FASB's new standard on going concern, ASU No. 2014-15, beginning with the year ended December 31, 2016 and all annual and interim periods thereafter, we assess going concern uncertainty in our consolidated financial statements to determine if we have sufficient cash and cash equivalents on hand and working capital to operate for a period of at least one year from the date our consolidated financial statements are issued or are available to be issued, which is referred to as the "look-forward period" as defined by ASU No. 2014-15. As part of this assessment, based on conditions that are known and reasonably knowable to us, we will consider various scenarios, forecasts, projections, and estimates, and we will make certain key assumptions, including the timing and nature of projected cash expenditures or programs, and our ability to delay or curtail those expenditures or programs, if necessary, among other factors. Based on this assessment, as necessary or applicable, we make certain assumptions concerning our ability to curtail or delay research and development programs and expenditures to the extent we deem probable those implementations can be achieved and we have the proper authority to execute them within the look-forward period in accordance with ASU No. 2014-15.

Revenue recognition – We comply with ASC 605-10 and recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price is fixed or determinable, and collectability is reasonably assured. We account for grants received to perform research and development services in accordance with ASC 730-20, *Research and Development Arrangements*, which requires an assessment at the inception of the grant whether the grant is a liability or a contract to perform research and development services for others. If the company receiving the grant is obligated to repay the grant funds to the grantor regardless of the outcome of the research and development activities, then the company is required to estimate and recognize that liability. Alternatively, if the company receiving the grant is not required to repay or is only required to repay the grant funds only if the research and development activities are successful, then the grant agreement is accounted for as a contract to perform research and development services for others. In this case, grant revenue is recognized when the related research and development expenses are incurred. Revenues from the sale of research products and services are primarily derived from the sale of hydrogels and stem cell products and are recognized when earned. Royalty revenues consist of product royalty payments. We recognize revenue in the quarter in which the royalty reports are received rather than the quarter in which the sales took place. License fee revenues consist of fees under license agreements and are recognized when earned and reasonably estimable and, also include subscription and advertising revenue from our online databases based upon applicable subscription or advertising periods. When we are entitled to receive up-front nonrefundable licensing or similar fees pursuant to agreements under which we have no continuing performance obligations, the fees are recognized as revenues when collection is reasonably assured. When we receive up-front nonrefundable licensing or similar fees pursuant to agreements under which we do have continuing performance obligations, the fees are deferred and amortized ratably over the performance period. If the performance period cannot be reasonably estimated, we amortize nonrefundable fees over the life of the contract until such time that the performance period can be more reasonably estimated. Milestone payments, if any, related to scientific or technical achievements, subject to substantial uncertainty, are recognized in income when the milestone is accomplished if (a) substantive effort was required to achieve the milestone, (b) the amount of the milestone payment appears reasonably commensurate with the effort expended, and (c) collection of the payment is reasonably assured.

Equity method accounting for Asterias and OncoCyte, at fair value – We use the equity method of accounting when we have the ability to exercise significant influence, but not control, as determined in accordance with GAAP, over the operating and financial policies of a company in which we hold an equity interest. For equity method investments, which we have elected to measure at fair value, unrealized gains and losses are reported in the consolidated statements of operations as a non-operating gain or loss from equity method investments included in other income and expenses, net. See Notes 4 and 5 to our consolidated financial statements included elsewhere in this Report.

Long-lived intangible assets – Long-lived intangible assets, consisting primarily of acquired patents, patent applications, and licenses to use certain patents are stated at acquired cost, less accumulated amortization. Amortization expense is computed using the straight-line method over the estimated useful lives of the assets, generally over 10 years.

Impairment of long-lived assets – Our long-lived assets, including long-lived intangible assets, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be fully recoverable. If an impairment indicator is present, we evaluate recoverability by a comparison of the carrying amount of the assets to future undiscounted net cash flows expected to be generated by the assets. If the assets are impaired, the impairment recognized is measured by the amount by which the carrying amount exceeds the estimated fair value of the assets.

Research and development – Research and development expenses consist of costs incurred for company-sponsored, collaborative and contracted research and development activities. These costs include direct and research-related overhead expenses including compensation and related benefits, stock-based compensation, consulting fees, research and laboratory fees, rent of research facilities, amortization of intangible assets, and license fees paid to third parties to acquire patents or licenses to use patents and other technology. We expense research and development costs as incurred. Research and development expenses incurred and reimbursed by grants from third parties approximate the grant income recognized in the consolidated statements of operations.

Stock-based compensation – We follow accounting standards governing share-based payments, which require the measurement and recognition of compensation expense for all share-based compensation awards made to directors and employees, including employee stock options, based on estimated fair values. Upon adoption of ASU 2016-09 on January 1, 2017, forfeitures are accounted for as they occur instead of based on the number of awards that were expected to vest prior to adoption of ASU 2016-09. Based on the nature and timing of our grants, straight line expense attribution of stock based compensation for the entire award and the relatively low forfeiture rates on BioTime's experience, the impact of adoption of ASU 2016-09 pertaining to forfeitures was not material to our consolidated financial statements. We utilize the Black-Scholes-Merton option pricing model. Our determination of fair value of share-based payment awards on the date of grant using an option-pricing model is affected by our stock price as well as assumptions regarding a number of complex and subjective variables. These variables include, but are not limited to, expected stock price volatility over the term of the awards, and the expected term of options granted, derived from actual and projected employee stock option exercise behaviors. The expected term of options granted is derived from historical data on employee exercises and post-vesting employment termination behavior. The risk-free rate is based on the U.S. Treasury rates in effect during the corresponding period of grant.

Certain of our privately-held consolidated subsidiaries have their own share-based compensation plans. For share-based compensation awards granted by our privately-held consolidated subsidiaries under their respective equity plans, we determine the expected stock price volatility using historical prices of comparable public company's common stock for a period equal to the expected term of the options. The expected term of those privately-held company options is based upon the "simplified method" provided under *Staff Accounting Bulletin, Topic 14*, or SAB Topic 14. The fair value of the shares of common stock underlying the stock options of these privately-held consolidated subsidiaries is determined by the Board of Directors of those subsidiaries, as applicable, which is also used to determine the exercise prices of those stock options at the time of grant.

Although the fair value of employee stock options is determined in accordance with FASB guidance, changes in the assumptions can materially affect the estimated value and therefore the amount of compensation expense recognized in the consolidated financial statements.

In management's opinion, the existing valuation models may not provide an accurate measure of the fair value of employee stock options because the option-pricing model value may not be indicative of the fair value that would be established in a willing buyer/willing seller market transaction.

Income taxes – We account for income taxes in accordance with ASC 740, *Income Taxes*, which prescribe the use of the asset and liability method, whereby deferred tax asset or liability account balances are calculated at the balance sheet date using current tax laws and rates in effect. Valuation allowances are established when necessary to reduce deferred tax assets when it is more likely than not that a portion or all of the deferred tax assets will not be realized. ASC 740 guidance also prescribes a recognition threshold and a measurement attribute for the financial statement recognition and measurement of tax positions taken or expected to be taken in a tax return. For benefits to be recognized, a tax position must be more-likely-than-not sustainable upon examination by taxing authorities. We file a U.S. federal income tax return as well as various state and foreign income tax returns. Our judgments regarding future taxable income may change over time due to changes in market conditions, changes in tax laws, tax planning strategies or other factors. Certain majority-owned subsidiaries that we consolidate under GAAP file their own, standalone federal income tax returns as those subsidiaries are not considered consolidated under federal income tax regulations, and accordingly, we may not use the tax attributes of those subsidiaries for our income taxes. If our assumptions, and consequently our estimates, change in the future with respect to our own deferred tax assets and liabilities, the valuation allowance may be increased or decreased, which may have a material impact on our consolidated statements of operations.

On December 22, 2017, the United States enacted major federal tax reform legislation, Public Law No. 115-97, commonly referred to as the 2017 Tax Cuts and Jobs Act ("2017 Tax Act"), which enacted a broad range of changes to the Internal Revenue Code. Changes to taxes on corporations impacted by the 2017 Tax Act include, among others, lowering the U.S. federal tax rates to a 21 percent flat tax rate, eliminating the corporate alternative minimum tax ("AMT"), imposing additional limitations on the deductibility of interest and net operating losses, allowing any net operating loss ("NOLs") generated in tax years ending after December 31, 2017 to be carried forward indefinitely and generally repealing carrybacks, reducing the maximum deduction for NOL carryforwards arising in tax years beginning after 2017 to a percentage of the taxpayer's taxable income, and allowing for the expensing of certain capital expenditures. The 2017 Tax Act also puts into effect a number of changes impacting operations outside of the United States including, but not limited to, the imposition of a one-time tax "deemed repatriation" on accumulated offshore earnings not previously subject to U.S. tax, and shifts the U.S taxation of multinational corporations from a worldwide system of taxation to a territorial system. ASC 740 requires the effects of changes in tax rates and laws on deferred tax balances (including the effects of the one-time transition tax) to be recognized in the period in which the legislation is enacted (see Note 13 to our consolidated financial statements included elsewhere in this Report).

Principles of consolidation – Our consolidated financial statements include the accounts of our wholly-owned and majority-owned subsidiaries. All material intercompany accounts and transactions have been eliminated in consolidation. The consolidated financial statements are presented in accordance with accounting principles generally accepted in the U.S. and with the accounting and reporting requirements of SEC Regulation S-X.

As further discussed in Notes 3 and 4 to the consolidated financial statements, on February 17, 2017, we deconsolidated OncoCyte's financial statements from our consolidated financial statements due to our "loss of control" of OncoCyte under GAAP as a result of the decrease in our percentage ownership in OncoCyte from 51.1% to 49.9% following the exercise of OncoCyte stock purchase warrants by certain investors. Loss of control is deemed to have occurred when, among other things, a parent company owns less than a majority of the outstanding common stock in the subsidiary, lacks a controlling financial interest in the subsidiary and, is unable to unilaterally control the subsidiary through other means such as having, or being able to obtain, the power to elect a majority of the subsidiary's Board of Directors based solely on contractual rights or ownership of shares holding a majority of the voting power of the subsidiary's voting securities. All of these loss-of-control factors were present for with respect to our interest in OncoCyte as of February 17, 2017. Accordingly, since February 17, 2017, we have accounted for the OncoCyte common stock we hold using the equity method of accounting at fair value. Although beginning on February 17, 2017, OncoCyte's financial statements and results will no longer be part of our consolidated financial statements and results, the market value of the OncoCyte common stock we hold is reflected on our consolidated balance sheet and changes in the market value of those shares are reflected in our consolidated statements of operations, allowing our shareholders to evaluate the value of the OncoCyte portion of our business.

As further discussed in Notes 3 and 5 to our consolidated financial statements, effective May 13, 2016, we deconsolidated Asterias financial statements and results of operations due to the decrease in our percentage ownership in Asterias from 57.1% to 48.7% as a result of Asterias' public offering of its common stock to raise capital for its operations. On May 13, 2016, we experienced a loss of control of Asterias under GAAP. Although beginning on May 13, 2016, Asterias' financial statements and results will no longer be part of our consolidated financial statements and results, the market value of the Asterias common stock we hold is reflected on our consolidated balance sheet and changes in the market value of those shares are reflected in our consolidated statements of operations, allowing our shareholders to evaluate the value of the Asterias portion of our business.

Results of Operations

Comparison of Years Ended December 31, 2017 and 2016

Revenues

The following tables show our revenues for the years ended December 31, 2017 and 2016 (amounts in thousands).

	Year Ended December 31,		$ Increase/	% Increase/
	2017	2016	(Decrease)	(Decrease)
Grant revenue	$ 1,666	$ 3,671[(1)]	$ (2,005)	-54.6%
Royalty from product sales and license fees	389	544[(2)]	(155)	-28.5%
Subscription and advertising	1,395	972	423	+43.5%
Sales of research products and services	8	736	(728)	-98.9%
Total revenues	3,458	5,923	(2,465)	-41.6%
Cost of sales	(168)	(358)	190	-53.1%
Gross profit	$ 3,290	$ 5,565	$ (2,275)	-40.9%

(1) Includes $2.2 million of grant revenue of Asterias

(2) Includes $0.1 million of royalty revenue of Asterias

Our total revenues decreased by approximately $2.5 million for the year ended December 31, 2017 as compared to 2016, primarily as a result of the Asterias Deconsolidation. Asterias contributed $2.3 million to our consolidated revenues during 2016, including $2.2 million of grant revenue, prior to the deconsolidation. Our grant revenue in 2017 was $1.7 million as compared to $1.4 million in 2016, and during 2017 included $1.5 million of a 7.2 million Israeli New Shekels (approximately $2.0 million) grant to Cell Cure from the IIA for the development of OpRegen®. Our grant revenue during 2017 also included a $0.2 million portion of a $1.56 million SBIR grant to BioTime. The SBIR grant funds will be made available to us as allowable expenses are incurred during the term of the grant. No grants were awarded or disbursed to BioTime in 2016.

Our subscription and advertising revenues amounted to $1.4 million and $1.0 million for the years ended December 31, 2017 and 2016, respectively. Those revenues were generated entirely from subscription and advertising through LifeMap Sciences' online database business primarily related to its *GeneCards*® database.

Sales of research products and other service revenues were insignificant during 2017 principally as a result of the reduction of operations at LifeMap Solutions, which earned $0.7 million in 2016 from mobile health software development performed for its customers. LifeMap Solutions has ceased conducting its mobile health software application business and is not expected to generate any further revenues.

Cost of sales for 2017 as compared to 2016 decreased in line with the decrease in the various streams of revenues other than grant revenue, and also reflects the deconsolidation of Asterias related cost of sales.

Operating Expenses

The following table shows our consolidated operating expenses for the years ended December 31, 2017 and 2016 (in thousands).

	Year Ended December 31,		$ Increase/	% Increase/
	2017	2016	(Decrease)	Decrease
Research and development expenses	$ 24,024[(1)]	$ 36,106[(2)]	$ (12,082)	-33.4%
General and administrative expenses	19,922[(3)]	28,426[(4)]	(8,504)	-30.0%

(1) Includes $798,000 of OncoCyte 2017 research and development expenses incurred before the OncoCyte Deconsolidation.

(2) Includes $5.746 million of OncoCyte 2016 research and development expenses for the full year and $8.684 million of Asterias 2016 research and development expenses incurred before the Asterias Deconsolidation

(3) Includes $590,000 of OncoCyte 2017 general and administrative expenses incurred before the OncoCyte Deconsolidation.

(4) Includes $5.910 million of OncoCyte 2016 general and administrative expenses for the full year and $7.561million of Asterias 2016 general and administrative expenses incurred before the Asterias Deconsolidation

Research and development expenses

Research and development expenses decreased by $12.1 million to $24.0 million in 2017 as compared to $36.1 million in 2016. This decrease is primarily attributable to the deconsolidation of Asterias and OncoCyte, which accounted for $8.7 million and $4.9 million of the decrease, respectively, as shown in the table below. The reduction of operations at LifeMap Solutions during 2017 accounted for $3.3 million of the decrease in research and development expenses as shown in the table below.

The total decrease was offset by an increase of $4.9 million in research and development program expenses attributable to BioTime and AgeX. BioTime program expenses increased by $4.2 million with $2.8 million of the increase attributable to *OpRegen*® program expenses, and $1.4 million of the increase attributable to *Renevia*® related expenses. AgeX project expenses increased by $0.6 million primarily due to increased expenditures in programs utilizing *PureStem*® cell lines, iTR technology, and cGMP hES cell lines.

The following table shows the amounts and percentages of our total research and development expenses of $24.0 million and $36.1 million allocated to our primary research and development programs during the years ended December 31, 2017 and 2016, respectively (amounts in thousands).

		Year Ended December 31,			
		Amount[1]		Percent of Total	
Company	**Program**	**2017**	**2016**	**2017**	**2016**
BioTime and subsidiaries other than AgeX [2]	*OpRegen*® and *Renevia*® and other *HyStem*® *products and PureStem*® *progenitor cell lines for orthopedic applications*	$ 17,456	$ 13,231	72.7%	36.6%
AgeX Therapeutics including ReCyte Therapeutics [3]	*PureStem*® progenitor cell lines, brown adipose fat, iTR technology, and pre-clinical cardiovascular therapy research and development	3,736	3,097	15.6%	8.6%
LifeMap Sciences [4]	Biomedical, gene, and disease databases and tools	1,548	1,602	6.4%	4.4%
LifeMap Solutions [5]	Mobile health software application	486	3,746	2.0%	10.4%
Asterias [6]	Pluripotent cell therapy for neurology (spinal cord injury) and oncology (acute myeloid leukemia and lung cancer)	-	8,684	-%	24.1%
OncoCyte [7]	Cancer diagnostics	798	5,746	3.3%	15.9%
Total research and development expenses		$ 24,024	$ 36,106	100.0%	100.0%

(1) Amount includes research and development expenses incurred directly by the named subsidiary and certain general research and development expenses, such as lab supplies, lab expenses, rent, and insurance allocated to research and development expenses, incurred directly by BioTime on behalf of the subsidiary and allocated to the subsidiary.

(2) BioTime includes Cell Cure, ESI, and OrthoCyte.

(3) Although AgeX was capitalized during August 2017 by the contribution of assets from BioTime and cash from outside investors, for comparative purposes in the tables above, for the years ended December 31, 2017 and 2016, AgeX related research and development expenses that were previously included in BioTime have been reclassified to AgeX for the periods presented. See Note 10 to our consolidated financial statements included elsewhere in this Report.

(4) LifeMap Sciences is a subsidiary of AgeX.

(5) During July 2017, LifeMap Solutions ceased conducting its mobile health software application business and was dissolved on February 9, 2018.

(6) For the year ended December 31, 2016, includes the period from January 1, 2016 through May 12, 2016, the date prior to the Asterias Deconsolidation

(7) For the year ended December 31, 2017, includes the period from January 1, 2017 through February 16, 2017, the date prior to the OncoCyte Deconsolidation.

General and administrative expenses

General and administrative expenses include employee and director compensation allocated to general and administrative expenses, consulting fees other than those paid for science-related consulting, facilities and equipment rent and maintenance related expenses, insurance costs allocated to general and administrative expenses, costs of patent applications, prosecution and maintenance, stock exchange-related costs, depreciation expense, marketing costs, board fees, legal and accounting costs, and other miscellaneous expenses which are allocated to general and administrative expense.

The following table shows the amount and percentages of our total general and administrative expenses of $19.9 million and $28.4 million incurred and allocated to BioTime and our subsidiaries during the years ended December 31, 2017 and 2016, respectively (amounts in thousands).

	Year Ended December 31,			
	Amount[1]		Percent	
Company	**2017**	**2016**	**2017**	**2016**
BioTime and subsidiaries other than AgeX [2]	$ 15,061	$ 9,656	75.6%	34.0%
AgeX Therapeutics including ReCyte Therapeutics [3]	2,873	1,914	14.4%	6.7%
LifeMap Sciences [4]	563	1,627	2.8%	5.7%
LifeMap Solutions [5]	835	1,758	4.2%	6.2%
Asterias [6]	-	7,561	-%	26.6%
OncoCyte [7]	590	5,910	3.0%	20.8%
Total general and administrative expenses	$ 19,922	$ 28,426	100.0%	100.0%

(1) Amount includes general and administrative expenses incurred directly by the named subsidiary and allocations from BioTime for certain general overhead expenses to the subsidiary.

(2) BioTime includes Cell Cure, ESI, and OrthoCyte

(3) Although AgeX was capitalized during August 2017 by the contribution of assets from BioTime and cash from certain investors, for comparative purposes in the tables above, for years ended December 31, 2017 and 2016, AgeX related general and administrative expenses that were previously included in BioTime have been reclassified to AgeX for the periods presented. See Note 10 to our consolidated financial statements included elsewhere in this report.

(4) LifeMap Sciences is a subsidiary of AgeX.

(5) During July 2017, LifeMap Solutions ceased conducting its mobile health software application business and was dissolved on February 9, 2018.

(6) For the year ended December 31, 2016, includes the period from January 1, 2016 through May 12, 2016, the date prior to the Asterias Deconsolidation

(7) For the year ended December 31, 2017, includes the period from January 1, 2017 through February 16, 2017, the date prior to the OncoCyte Deconsolidation.

General and administrative expense for the year ended December 31, 2017 were $19.9 million compared to $28.4 million in 2016, a decrease of $8.5 million. This decrease is primarily attributable to the deconsolidation of Asterias and OncoCyte, which accounted for a decrease of $7.6 million and $5.3 million, respectively in general and administrative expenses. The reduction of operations at LifeMap Solutions during 2017 accounted for $0.9 million of the decrease in general and administrative expenses as shown in the table above. The total decrease in general and administrative expenses was offset by an increase of $5.3 million primarily due to increases in compensation and related expenses, including stock-based compensation expense resulting from the hire of additional key personnel; increased public company compliance costs such legal, accounting and filing fees; increased rent and maintenance expenses in our office and laboratory facilities; a noncash expense recorded in July 2017 for the issuance of a warrant to a former Cell Cure shareholder, and increases in investor relations and other consulting expenses.

Gain on sale of assets

Loss from operations for the year ended December 31, 2017 includes a $1.8 million gain we recognized on the sale of certain assets by LifeMap Solutions. BioTime has determined that it will no longer provide further funding for LifeMap Solutions operations and LifeMap Solutions has ceased conducting its mobile health software application business.

Other income and expenses, net

The following table shows the amount of other income and expenses, net, during the year ended December 31, 2017 and 2016 (in thousands):

	Year Ended December 31,	
	2017	**2016**
Other income/(expenses), net		
Interest expense, net	$ (692)	$ (747)
BioTime's share of losses and impairment in equity method investment in Ascendance	-	(4,671)
Gain on deconsolidation of OncoCyte	71,697	-
Gain on deconsolidation of Asterias	-	49,048
Loss on equity method investment in OncoCyte at fair value	(2,935)	-
Gain (loss) on equity investment in Asterias at fair value	(51,107)	34,361
Loss on extinguishment of related party convertible debt	(2,799)	-
Other income (expenses), net	1,449	(403)
Total other income, net	$ 15,613	$ 77,588

Unrealized gain on deconsolidation of OncoCyte and Asterias – During the year ended December 31, 2017, we recorded an unrealized gain of $71.7 million in connection with the OncoCyte Deconsolidation on February 17, 2017. During the year ended December 31, 2016, we recorded an unrealized gain of $49.0 million in connection with the Asterias Deconsolidation on May 13, 2016.

Unrealized loss on OncoCyte Shares –We own 14.7 million shares of common stock of OncoCyte, or approximately 46.7% of the OncoCyte common stock outstanding as of December 31, 2017. We elected to account for our shares in OncoCyte at fair value using the equity method of accounting beginning on February 17, 2017, the date of the OncoCyte Deconsolidation. Our OncoCyte shares had a fair value of $68.2 million as of December 31, 2017 and a fair value of $71.2 million as of February 17, 2017, based on the $4.65 per share and $4.85 per share closing prices of OncoCyte common stock on the NYSE American on those respective dates, resulting in an unrealized loss of $2.9 million recorded in 2017.

Unrealized (loss) gain on Asterias Shares – We own 21.7 million shares of common stock of Asterias, or approximately 40.2% of Asterias outstanding common stock as of December 31, 2017. We elected to account for our shares in Asterias at fair value using the equity method of accounting beginning on May 13, 2016, the date of the Asterias Deconsolidation. Our Asterias shares had a fair value of $48.9 million as of December 31, 2017, and a fair value of $100.0 million as of December 31, 2016, based on the $2.25 per share and $4.60 per share closing prices of Asterias common stock on the NYSE American on those respective dates, resulting in an unrealized loss of $51.1 million recorded in 2017. Our Asterias shares had a fair value of $100.0 million as of December 31, 2016 and a fair value of $65.7 million as of May 13, 2016, based on the $4.60 per share and $3.02 per share closing prices of Asterias common stock on the NYSE American on those respective dates, resulting in unrealized gain of $34.3 million recorded in 2016.

BioTime's share of losses and impairment in equity method investment in Ascendance – During 2016, we recognized $4.7 million as our share of Ascendance's net loss and from an impairment charge of the remaining carrying value in our Ascendance investment based on a determination that an impairment in the value of the shares had occurred.

Loss on extinguishment of related party convertible debt – We recognized a $2.8 million noncash loss on extinguishment of related party convertible debt in connection with the purchase of all of the outstanding Cell Cure convertible notes from HBL on July 10, 2017.

Interest income and expense, net – During 2017, we incurred $836,000 of interest expense, which was primarily noncash interest expense on amortization of a discount on related party convertible debt, offset by $144,000 of interest income. During 2016, we incurred $1.1 million in interest expense, which includes $0.3 million in amortized interest expenses from our leasehold improvements and lease liability, offset by $0.3 million of interest income. Interest income is primarily attributed to interest earned on cash and cash equivalents balances held in interest bearing accounts during the respective years.

Other income and expenses, net – Other income and expenses, net, in 2017 and 2016 consists primarily of net foreign currency transaction gains and losses recognized by Cell Cure and ESI. Foreign currency transaction gains and losses are principally related to the remeasurement of the US dollar denominated notes payable by Cell Cure to BioTime.

Comparison of Years Ended December 31, 2016 and 2015

To provide proper comparability of the results of BioTime due to the Asterias Deconsolidation, the following tables provide consolidated results of operations of BioTime for the years ended December 31, 2016 and 2015, then show the results operations of Asterias that are included in BioTime's consolidated results, which include the periods from January 1, 2016 through May 12, 2016 (133 days) and, for the year ended December 31, 2015, after intercompany eliminations, to arrive at the BioTime consolidated results less Asterias (in thousands).

	Year Ended December 31, 2016			Year Ended December 31, 2015		
	Consolidated Results of Operations	Asterias (133 days)	Consolidated Results less Asterias	Consolidated Results of Operations	Asterias	Consolidated Results less Asterias
REVENUES:						
Grant revenue	$ 3,671	$ 2,247	$ 1,424	$ 4,502	$ 3,007	$ 1,495
Royalties from product sales and license fees	544	107	437	719	535	184
Subscription and advertising	972	-	972	1,357	-	1,357
Sale of research products and services	736	-	736	458	40	418
Total revenues	5,923	2,354	3,569	7,036	3,582	3,454
Cost of sales	(358)	(53)	(305)	(1,107)	(268)	(839)
Gross profit	$ 5,565	$ 2,301	$ 3,264	$ 5,929	$ 3,314	$ 2,615

Revenues

The following tables show our consolidated revenues for the years ended December 31, 2016 and 2015 (amounts in thousands).

	Year Ended December 31,		$ Increase/ Decrease	% Increase/ Decrease
	2016	2015		
Grant revenue	$ 3,671	$ 4,502	$ -831	-18%
Royalty from product sales and license fees	544	719	-175	-24%
Subscription and advertising	972	1,357	-385	-28%
Sales of research products and services	736	458	+278	+61%
Total revenues	5,923	7,036	-1,113	-16%
Cost of sales	(358)	(1,107)	-749	-68%
Gross profit	$ 5,565	$ 5,929	$ -364	-6%

For the year ended December 31, 2016, total consolidated revenues decreased by $1.1 million as compared to the same period in 2015 primarily due to the Asterias Deconsolidation which resulted in the exclusion of Asterias revenue from our financial results after May 12, 2016. Revenues, net of Asterias, were relatively unchanged in 2016 compared to 2015 at $3.6 million and $3.5 million, respectively BioTime grant revenue, net of Asterias, for 2016, was entirely from grants awarded to Cell Cure by the IIA for the development of *OpRegen*®, while in 2015 grant revenue, net of Asterias, was from a IIA grant of $1.0 million to Cell Cure, and a $0.5 million grant from the NIH.

Our subscription and advertising revenues amounted to $1.0 million and $1.4 million for the years ended December 31, 2016 and 2015, respectively. Subscription and advertising revenues are generated entirely from LifeMap Science's online database business primarily related to its *GeneCards*® database.

Revenues from the sale of research products and services in 2015 were primarily derived from the sale of hydrogels and stem cell products by our former ESI-BIO division. During December 2015, we contributed or licensed rights to sell those research products to Ascendance in exchange for shares of Ascendance common stock, and as a result, revenues from sales of those products decreased by $0.4 million in 2016. Service revenues of $0.7 million in 2016 were primarily generated by LifeMap Solutions from mobile health software development performed for its customers.

Cost of sales for the year ended December 31, 2016 as compared to 2015 decreased in line with the decrease in the various streams of revenues other than grant income, also contributed by the deconsolidation of Asterias related cost of sales.

Operating Expenses

The following table shows our consolidated operating expenses for the years ended December 31, 2016 and 2015 (in thousands).

	Years Ended December 31,		$ Increase/	% Increase/
	2016	2015	Decrease	Decrease
Research and development expenses	$ 36,106	$ 42,604	$ -6,498	-15%
General and administrative expenses	28,426	29,134	-708	-2%

	Year Ended December 31, 2016			Year Ended December 31, 2015		
	Consolidated Results of Operations	Asterias (133 days)	Consolidated Results less Asterias	Consolidated Results of Operations	Asterias	Consolidated Results less Asterias
OPERATING EXPENSES:						
Research and development	$ 36,106	$ 8,684	$ 27,422	$ 42,604	$ 17,322	$ 25,282
General and administrative	28,426	7,561	20,865	29,134	7,711	21,423

Research and development expenses

Total research and development expenses decreased by $6.5 million to $36.1 million in 2016 from $42.6 million in 2015. The decrease is attributable primarily to the Asterias Deconsolidation which resulted in the exclusion of Asterias expenses after May 12, 2016. Research and development expenses attributable to BioTime, net of Asterias, increased approximately $2.1 million or 8% to $27.4 million for the year ended December 31, 2016, from $25.3 million during 2015. The increase is primarily attributable to the development of *PureStem*® progenitor and pluripotent cell lines and related research products by BioTime, the development of *OpRegen*® by Cell Cure, and the development of cancer diagnostic tests by OncoCyte. These expenses include consulting and outside research and services, including stock-based compensation to consultants, and regulatory and clinical trials of BioTime's *Renevia*®, Cell Cure *OpRegen*®, and OncoCyte's cancer diagnostic tests.

The following table shows the approximate amounts and percentages of our total research and development expenses of $36.1 million and $42.6 million allocated to our primary research and development programs during the years ended December 31, 2016 and 2015, respectively (amounts in thousands).

Company	Program	Amount[1]		Percent	
		2016	2015	2016	2015
BioTime and ESI	*PureStem*® progenitor and pluripotent cell lines, and related research products	$ 6,060	$ 5,196	16.8%	12.2%
BioTime	*Renevia*® and other *HyStem*® products and research	3,856	4,047	10.7%	9.5%
BioTime	*Hextend*®	54	59	0.1%	0.1%
Cell Cure[2]	*OpRegen*®	4,803	4,086	13.3%	9.6%
OrthoCyte	Orthopedic therapy	606	590	1.7%	1.4%
ReCyte Therapeutics	Cardiovascular therapy	949	1,142	2.6%	2.7%
Subtotal therapeutic projects		16,328	15,120	45.2%	35.5%
Asterias[3]	Pluripotent cell therapy programs	8,684	17,322	24.1%	40.7%
LifeMap Sciences[4]	Databases and mobile health products	5,348	5,251	14.8%	12.3%
OncoCyte	Cancer diagnostics	5,746	4,911	15.9%	11.5%
Subtotal non-therapeutic projects		11,094	10,162	30.7%	23.8%
Total projects		$ 36,106	$ 42,604	100.0%	100.0%

(1) Amount includes research and development expenses incurred directly by the named subsidiary and certain general research and development expenses, such as lab supplies, lab expenses, rent, and insurance allocated to research and development expenses, incurred directly by BioTime on behalf of the subsidiary and allocated to the subsidiary.

(2) Cell Cure expenses, although shown at 100% in the table, are funded 75% by BioTime and 25% by non-controlling interests in Cell Cure.

(3) Amounts for 2016 include only the period from January 1 through May 12, 2016, due to the deconsolidation of Asterias.

(4) Includes LifeMap Solutions.

General and administrative expenses

The following table shows the amount and approximate percentages of our total general and administrative expenses of $28.4 million and $29.1 million allocated to BioTime and our subsidiaries during the years ended December 31, 2016 and 2015, respectively (amounts in thousands).

	Amount[1]		Percent	
Company	**2016**	**2015**	**2016**	**2015**
BioTime	$ 8,958	$ 9,761	31.5%	33.5%
Cell Cure[4]	1,185	655	4.2%	2.2%
OrthoCyte	570	582	2.0%	2.0%
ReCyte Therapeutics	581	760	2.0%	2.6%
ESI	276	245	1.0%	0.9%
Subtotal therapeutic entities	11,570	12,003	40.7%	41.2%
Asterias[2]	7,561	7,711	26.6%	26.5%
LifeMap Sciences[3]	3,385	5,142	11.9%	17.6%
OncoCyte	5,910	4,278	20.8%	14.7%
Subtotal non-therapeutic entities	9,295	9,420	32.7%	32.3%
Total	$ 28,426	$ 29,134	100.0%	100.0%

(1) Amount includes general and administrative expenses incurred directly by the named subsidiary and allocations from BioTime for certain general overhead expenses to the subsidiary.

(2) Amounts for 2016 include only the period from January 1 through May 12, 2016, due to the deconsolidation of Asterias.

(3) Includes LifeMap Solutions, Inc.

(4) Cell Cure expenses, although shown 100% in the table above, are funded 75% by BioTime and 25% by noncontrolling interests in Cell Cure.

General and administrative expense for the years ended December 31, 2016 and 2015 decreased by $0.7 million. The decrease is mainly attributable to a $2.1 million decrease in stock-based compensation expense due primarily to modification adjustments made in 2015 and lower exercise prices for grants made in 2016. This decrease was offset by an increase in bad debt expense of $0.9 million to account for bad debts on subscription receivables for LifeMap Sciences and shared services receivable from Ascendance. In addition, there was an increase of $0.5 million for payroll and related expenses due to an increase in headcount. LifeMap Sciences expenses decreased $1.8 million due to reductions of headcount. OncoCyte expenses increased by $1.6 million due to increased headcount and increased public company compliance and reporting costs.

General and administrative expenses include employee and director compensation allocated to general and administrative expenses, consulting fees other than those paid for science-related consulting, facilities and equipment rent and maintenance related expenses, insurance costs allocated to general and administrative expenses, stock exchange-related costs, depreciation expense, shipping expenses, marketing costs, legal and accounting costs, and other miscellaneous expenses which are allocated to general and administrative expense.

Other income and expenses, net

The following table shows the amount of other income and expenses, net, during the year ended December 31, 2016 and 2015 (in thousands):

	Year Ended December 31,	
	2016	**2015**
Other income/(expenses), net		
Interest expense, net	$ (747)	$ (340)
BioTime's share of losses and impairment in equity method investment in Ascendance	(4,671)	(35)
Gain on deconsolidation of Asterias	49,048	-
Gain on equity investment in Asterias at fair value	34,361	-
Gain on investment	-	3,694
Other expense, net	(403)	(160)
Total other income, net	$ 77,588	$ 3,159

Unrealized gain on deconsolidation of Asterias – During the year ended December 31, 2016, we recorded an unrealized gain of $49.0 million in connection with the Asterias Deconsolidation.

Unrealized gain on Asterias shares – We owned 21.7 million shares of common stock of Asterias, or approximately 46% of Asterias outstanding common stock as of December 31, 2016. We elected to account for our shares in Asterias at fair value using the equity method of accounting beginning on May 13, 2016, the date of the Asterias Deconsolidation. Our Asterias shares had a fair value of $100.0 million as of December 31, 2016 and a fair value of $65.7 million as of May 13, 2016, based on the closing price of Asterias common stock on the NYSE American on those respective dates, resulting in unrealized gain of $34.3 million recorded in 2016.

Interest income/(expense) – During 2016, we incurred $1.1 million in interest expense which includes $0.3 million in amortized interest expenses from our leasehold improvements and lease liability, offset by $0.3 million of interest income. During 2015, we incurred $0.5 million in interest expense offset by $0.1 million in interest income. Interest income is primarily attributed to interest earned on money market funds during their respective years.

BioTime's share of losses and impairment in equity method investment in Ascendance – During 2016, we recognized $4.7 million as our share of Ascendance's net loss and from an impairment charge of the remaining carrying value in our Ascendance investment based on a determination that an impairment in the value of the shares had occurred. During 2015, we recognized $35,000 for our share of Ascendance's net loss.

Other income/(expense) – Other income and expenses, net, in 2016 and 2015 consists primarily of net foreign currency transaction gains and losses recognized by ESI and by Cell Cure.

Gain on certain assets – During 2015, a $3.7 million unrealized gain was generated on the sale of a certain group of assets as part of our acquisition of shares of common stock of Ascendance in December 2015.

Income Taxes

Income Taxes– Although the OncoCyte Deconsolidation on February 17, 2017 was not a taxable transaction to us and did not result in a tax payment obligation, the $71.7 million unrealized gain on the OncoCyte Deconsolidation generated a deferred tax liability that was fully offset by our net operating losses. Subsequent to the OncoCyte Deconsolidation, an unrealized loss of $2.9 million was recorded with a corresponding decrease in the deferred tax liability on the OncoCyte shares during the year ended December 31, 2017, which was fully offset by an increase in the valuation allowance.

Similarly, the Asterias Deconsolidation on May 13, 2016 was not a taxable transaction to us and did not result in a tax payment obligation, the $49.0 million gain on the Asterias Deconsolidation generated a deferred tax liability that was fully offset by our net operating losses. Subsequent to the Asterias Deconsolidation, an unrealized gain of $34.3 million was recorded on the Asterias shares during the year ended December 31, 2016, which was fully offset by available net operating losses and the corresponding release of our valuation allowance on deferred tax assets. An unrealized loss of $51.1 million was recorded with a corresponding decrease in the deferred tax liability on the Asterias shares during the year ended December 31, 2017, which was fully offset by an increase in the valuation allowance.

In connection with the deconsolidation of OncoCyte and Asterias, the market value of the respective shares we hold in excess of the tax basis of the security, creates a deferred tax liability to us in that security. The deferred tax liability generated by OncoCyte and Asterias shares that we hold as of December 31, 2017, is a source of future taxable income to us that will more likely than not result in the realization of our deferred tax assets to the extent of those deferred tax liabilities. This deferred tax liability is determined based on the closing price of those securities as of December 31, 2017.

A valuation allowance is provided when it is more likely than not that all or some portion of the deferred tax assets will not be realized. We established a full valuation allowance for all periods presented due to the uncertainty of realizing future tax benefits from our net operating loss carryforwards and other deferred tax assets, including foreign net operating losses generated by our subsidiaries.

We recorded a current provision for income taxes of $22,000 for the year ended December 31, 2017 consisting of federal alternative minimum tax primarily related to our LifeMap Sciences subsidiary, which was fully offset by a fully refundable AMT credit available to us beginning in 2018 and thereafter, pursuant to the provisions of the 2017 Tax Act. This resulted in no tax provision or benefit recorded for 2017. No tax provision or benefit was recorded for income taxes for the year ended December 31, 2016. A deferred income tax benefit of $4.5 million was recorded for the year ended December 31, 2015, of which $4.8 million was related to the federal benefit and $290,000 was related to state tax expense.

Liquidity and Capital Resources

At December 31, 2017, we had $36.8 million of cash and cash equivalents on hand of which $7.4 million was held by AgeX and its subsidiaries. We also hold Asterias shares valued at approximately $48.9 million and OncoCyte shares valued at $68.2 million as of December 31, 2017, that we may use for liquidity, as necessary and as market conditions allow. BioTime has no present plan to liquidate its holdings of Asterias or OncoCyte shares. The market values shown may not represent the amount that could be realized in a sale of Asterias or OncoCyte shares due to various market and regulatory factors, including trading volume or market depth factors and volume and manner of sale restrictions under Federal securities laws, prevailing market conditions and prices at the time of any sale, and subsequent sales of securities by the subsidiaries.

Since inception, we have incurred significant net losses and have funded our operations primarily through the issuance of equity securities, payments from research grants, royalties from product sales and sales of research products and services. At December 31, 2017, we had an accumulated deficit of approximately $216.3 million, working capital of $35.7 million and shareholders' equity of $164.3 million. We have evaluated projected cash flows for us and our subsidiaries and we believe that our cash, cash equivalents and available-for-sale securities of $38.2 million as of December 31, 2017, provide sufficient cash, cash equivalents, and liquidity to carry out our current operations through at least twelve months from the issuance date of our consolidated financial statements included elsewhere in this Report.

Our projected cash flows are subject to various risks and uncertainties, and the unavailability or inadequacy of financing to meet future capital needs could force us to modify, curtail, delay, or suspend some or all aspects of our planned operations. Our determination as to when we will seek new financing and the amount of financing that we will need will be based on our evaluation of the progress we make in our research and development programs, any changes to the scope and focus of those programs, and projection of future costs, revenues, and rates of expenditure. For example, clinical trials being conducted for our *OpRegen*® program will be funded in part with funds from grants and not from cash on hand. If we were to lose our grant funding or we are unable to continue to provide working capital to the *OpRegen*® program, we may be required to delay, postpone, or cancel our clinical trials or limit the number of clinical trial sites, unless we are able to obtain adequate financing from another source that could be used for our clinical trials. We cannot assure that adequate financing will be available on favorable terms, if at all. Sales of additional equity securities by us or our subsidiaries and affiliates could result in the dilution of the interests of present shareholders.

Cash used in operating activities

During 2017, our total research and development expenses were $24.0 million and our general and administrative expenditures were $19.9 million. Net loss attributable to BioTime for the year ended December 31, 2017 amounted to $20.0 million. Net cash used in operating activities during this period amounted to $30.5 million. The difference between the net loss and net cash used in operating activities during the year ended December 31, 2017 was primarily attributable to the following noncash items: $3.3 million loss attributable to non-controlling interests, gain of $71.7 million related to the OncoCyte Deconsolidation, an unrealized loss of $54.0 million recorded for the combined decrease in fair value of our Asterias shares for the year ended December 31, 2017 and our OncoCyte shares from February 17, 2017 through December 31, 2017, amortization of intangible assets and depreciation expenses of $3.3 million, stock based compensation of $3.9 million, foreign currency remeasurement and other noncash gains of $3.5 million, $2.8 million loss on the extinguishment of Cell Cure convertible debt, and $1.4 million for liability classified warrants and other noncash expenses. Changes in working capital impacted our cash used in operations by $2.5 million as a net source of cash.

Cash used in investing activities

During the year ended December 31, 2017, we used $10.2 million for investing activities. The primary components of this use of cash were $ 8.9 million resulting from the deconsolidation of OncoCyte cash and cash equivalents balance and $1.3 million used to purchase property and equipment.

Cash provided by financing activities

During the year ended December 31, 2017, we generated $55.4 million in cash from financing activities. The primary sources of cash provided by financing activities were net proceeds of $45.1 million from our sale of 18,511,397 common shares in two underwritten public offerings, after deducting underwriting discounts, commissions and expenses related to the financings, $10.0 million in net proceeds received by AgeX from the sale of its common stock to investors, $0.8 million in net proceeds from the sale of 300,000 common shares at the market, offset by a $0.8 million purchase of 300,000 common shares from a related party and immediately retired, and $0.4 million in related party convertible loans obtained by Cell Cure from shareholders other than BioTime.

Contractual obligations

As of December 31, 2017, our contractual obligations for the next five years and thereafter were as follows (in thousands):

	Payments Due by Period				
Contractual Obligations [1]	**Total**	**Less Than 1 Year**	**1-3 Years**	**4-5 Years**	**After 5 Years**
Operating leases [2]	$ 5,346	$ 1,266	$ 2,130	$ 1,864	$ 86
Capital leases	195	31	74	74	16
Promissory notes to preferred stockholders	170	152	18	-	-
Total	$ 5,711	$ 1,449	$ 2,222	$ 1,938	$ 102

(1) This table does not include payments to key employees that could arise if they were involuntary terminated or if their employment terminated following a change in control.

(2) Includes the lease of our principal office and laboratory facilities in Alameda, California, including the lease liability, leases of the offices and laboratory facilities of Cell Cure, and other operating leases. See Note 12 to our consolidated financial statements regarding the lease liability.

Off-Balance Sheet Arrangements

As of December 31, 2017, we did not have any off-balance sheet arrangements, as defined in Item 303(a) (4) (ii) of SEC Regulation S-K.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Foreign Currency Exchange Risk

We are exposed to some foreign exchange currency risks because we have subsidiaries that are located in foreign countries. We do not engage in foreign currency hedging activities. Because we translate foreign currencies into United States dollars for reporting purposes, currency fluctuations have an impact on our financial results. We believe that our exposure to currency exchange fluctuation risk is mitigated by the fact that our foreign subsidiaries pay their financial obligations almost exclusively in their local currency, except for the Cell Cure intercompany loans and accrued interest payable to us, which are payable in United States dollars when they mature. As of, and for the year ended December 31, 2017, currency exchange rates did not have a material impact on our intercompany transactions with our foreign subsidiaries. However, a weakening of the dollar against the foreign exchange used in the home countries of our foreign subsidiaries could increase our cost of providing additional financing to our foreign subsidiaries in the future. Conversely, a strengthening of the dollar would decrease our cost of making additional investments in those subsidiaries.

Credit Risk

We and our subsidiaries place some cash in checking accounts in U.S. banks and invest most of our cash in money market funds. Deposits with banks may temporarily exceed the amount of insurance provided on such deposits. We will monitor the cash balances in the accounts and adjust the cash balances as appropriate, but if the amount of a deposit at any time exceeds the federally insured amount at a bank, the uninsured portion of the deposit could be lost, in whole or in part, if the bank were to fail. Investments in money market funds are not insured or guaranteed by the United States government or any of its agencies.

Our foreign subsidiaries deposit their cash in local banks, but if the amount of a deposit at any time exceeds the amount at a bank under the national banking insurance laws, the uninsured portion of the deposit could be lost, in whole or in part, if the bank were to fail.

Interest Rate Risk

We and our subsidiaries invest most of our cash in money market funds. The primary objective of our investments will be to preserve principal and liquidity while earning a return on our invested capital, without incurring significant risks. Our future investment income is not guaranteed and may fall short of expectations due to changes in prevailing interest rates, or we may suffer losses in principal if the net asset value of a money market fund falls below $1 per share.

Equity Method Accounting for Asterias and OncoCyte shares at fair value

We account for our Asterias and OncoCyte shares using the equity method of accounting fair value option. The value of those shares is subject to changes in the stock prices. Asterias and OncoCyte common stock trade on the NYSE American under the ticker symbols “AST” and “OCX”, respectively. As of December 31, 2017, the 52-week high/low closing stock price per share range for Asterias was $4.90 to $2.00, and for OncoCyte was $7.55 to $3.60.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Shareholders and Board of Directors
BioTime, Inc.
Alameda, California

Opinion on the Consolidated Financial Statements

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

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") and our report dated March 15, 2018 expressed an unqualified opinion thereon.

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

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

/s/ OUM & CO. LLP

San Francisco, California
March 15, 2018
We have served as the Company's auditor since 2014.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Shareholders and Board of Directors
BioTime, Inc.
Alameda, California

Opinion on Internal Control over Financial Reporting

We have audited BioTime, Inc. and Subsidiaries' (the "Company's") internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (the "COSO criteria"). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2017 and 2016, the related consolidated statements of operations, comprehensive income (loss), shareholders' equity, and cash flows for each of the three years in the period ended December 31, 2017, and the related notes and our report dated March 15, 2018 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Item 9A, *Management's Report on Internal Control over Financial Reporting*. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

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

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ OUM & CO. LLP

San Francisco, California
March 15, 2018

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

BIOTIME, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(IN THOUSANDS)

ASSETS	December 31, 2017 (Notes 1 and 3)	December 31, 2016 (Notes 1 and 3)
CURRENT ASSETS		
Cash and cash equivalents	$ 36,838	$ 22,088
Available-for-sale securities	1,337	627
Trade accounts and grants receivable, net	780	446
Landlord receivable	-	200
Receivable from affiliates, net	2,266	511
Prepaid expenses and other current assets	1,402	1,777
Total current assets	42,623	25,649
Property, plant and equipment, net	5,533	5,529
Deposits and other long-term assets	1,018	1,149
Equity method investment in OncoCyte, at fair value (Note 4)	68,235	-
Equity method investment in Asterias, at fair value (Note 5)	48,932	100,039
Intangible assets, net	6,900	10,206
TOTAL ASSETS	$ 173,241	$ 142,572
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES		
Accounts payable and accrued liabilities	$ 5,718	$ 7,144
Capital lease and lease liability, current portion	212	202
Promissory notes, current portion	152	99
Related party convertible debt	-	833
Deferred license and subscription revenue, current portion	488	572
Deferred revenues	309	-
Total current liabilities	6,879	8,850
LONG-TERM LIABILITIES		
Deferred revenues, net of current portion	-	308
Deferred rent liabilities, net of current portion	105	50
Lease liability, net of current portion	1,019	1,386
Capital lease liability, net of current portion	132	310
Related party convertible debt, net of discount	-	1,032
Promissory notes, net of current portion	18	120
Liability classified warrants and other long-term liabilities	825	8
TOTAL LIABILITIES	8,978	12,064
Commitments and contingencies (Note 12)		
SHAREHOLDERS' EQUITY		
Preferred shares, no par value, authorized 2,000 shares; none issued and outstanding as of December 31, 2017 and 2016, respectively		-
Common stock, no par value, authorized 150,000 shares; 126,866 shares issued and outstanding as of December 31, 2017 and 103,396 shares issued and 102,776 outstanding as of December 31, 2016	378,487	317,878
Accumulated other comprehensive income (loss)	451	(738)
Accumulated deficit	(216,297)	(196,321)
Treasury stock at cost: no shares as of December 31, 2017; 620 shares as of December 31, 2016	-	(2,891)
BioTime, Inc. shareholders' equity	162,641	117,928
Noncontrolling interest	1,622	12,580
Total shareholders' equity	164,263	130,508
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	$ 173,241	$ 142,572

See accompanying notes to the consolidated financial statements.

BIOTIME, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS
(IN THOUSANDS, EXCEPT PER SHARE DATA)

	Year Ended December 31,		
REVENUES:	**2017**	**2016**	**2015**
Grant revenue	$ 1,666	$ 3,671	$ 4,502
Royalties from product sales and license fees	389	544	719
Subscription and advertisement revenues	1,395	972	1,357
Sale of research products and services	8	736	458
Total revenues	3,458	5,923	7,036
Cost of sales	(168)	(358)	(1,107)
Gross profit	3,290	5,565	5,929
OPERATING EXPENSES:			
Research and development	(24,024)	(36,106)	(42,604)
General and administrative	(19,922)	(28,426)	(29,134)
Total operating expenses	(43,946)	(64,532)	(71,738)
Gain on sale of assets	1,754	-	-
Loss from operations	(38,902)	(58,967)	(65,809)
OTHER INCOME/(EXPENSES):			
Interest expense, net	(692)	(747)	(340)
BioTime's share of losses and impairment in equity method investment in Ascendance	-	(4,671)	(35)
Gain on deconsolidation of OncoCyte (Note 3)	71,697	-	-
Gain on deconsolidation of Asterias (Note 3)	-	49,048	-
Loss on equity method investment in OncoCyte at fair value (Note 4)	(2,935)	-	-
Gain (loss) on equity method investment in Asterias at fair value (Note 5)	(51,107)	34,361	-
Loss on extinguishment of related party convertible debt	(2,799)	-	-
Gain on investment	-	-	3,694
Other income/(expense), net	1,449	(403)	(160)
Total other income, net	15,613	77,588	3,159
INCOME (LOSS) BEFORE INCOME TAX BENEFIT	(23,289)	18,621	(62,650)
Deferred income tax benefit	-	-	4,516
NET INCOME (LOSS)	(23,289)	18,621	(58,134)
Net loss attributable to noncontrolling interest	3,313	14,951	11,143
NET INCOME (LOSS) ATTRIBUTABLE TO BIOTIME, INC.	(19,976)	33,572	(46,991)
Dividends on preferred shares	-	-	(415)
NET INCOME (LOSS) ATTRIBUTABLE TO BIOTIME, INC. COMMON SHAREHOLDERS	$ (19,976)	$ 33,572	$ (47,406)
NET INCOME (LOSS) PER COMMON SHARE:			
BASIC	$ (0.17)	$ 0.35	$ (0.59)
DILUTED	$ (0.17)	$ 0.34	$ (0.59)
WEIGHTED AVERAGE NUMBER OF COMMON SHARES OUTSTANDING:			
BASIC	114,476	97,316	79,711
DILUTED	114,476	99,553	79,711

See accompanying notes to the consolidated financial statements.

BIOTIME, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(IN THOUSANDS)

	Years ended December 31,		
	2017	**2016**	**2015**
NET INCOME (LOSS)	$ (23,289)	$ 18,621	$ (58,134)
Other comprehensive income/(loss), net of tax:			
Foreign currency translation adjustment, net of tax	668	(106)	(424)
Available-for-sale investments:			
Unrealized gain/(loss) on available-for-sale securities, net of taxes	521	(395)	1
COMPREHENSIVE INCOME (LOSS)	(22,100)	18,120	(58,557)
Less: comprehensive loss attributable to noncontrolling interest	3,313	14,951	11,143
COMPREHENSIVE INCOME (LOSS) ATTRIBUTABLE TO BIOTIME, INC. COMMON SHAREHOLDERS BEFORE PREFERRED STOCK DIVIDEND	(18,787)	33,071	(47,414)
Preferred stock dividend	-	-	(415)
COMPREHENSIVE INCOME (LOSS) ATTRIBUTABLE TO BIOTIME, INC. COMMON SHAREHOLDERS	$ (18,787)	$ 33,071	$ (47,829)

See accompanying notes to the consolidated financial statements.

BIOTIME, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY
(IN THOUSANDS)

	Preferred Shares		Common Shares		Treasury Shares						
	Number of Shares	Amount	Number of Shares	Amount	Number of Shares	Amount	Contributed Capital	Accumulated Deficit	Noncontrolling Interest	Accumulated Other Comprehensive Income/(Loss)	Total Shareholder's Equity
BALANCE AT DECEMBER 31, 2014	70	$ 3,500	83,122	$ 234,843	(4,894)	$ (19,890)	$ 7	$ (182,190)	$ 26,267	$ 186	$ 62,723
Sale of common shares, net of fees paid and amortized	-	-	10,738	33,897	-	-	-	-	-	-	33,897
Exercise of options	-	-	155	621	-	-	-	-	-	-	621
Warrants exercised	-	-	4	19	-	-	-	-	-	-	19
Stock options granted for compensation	-	-	-	2,003	-	-	-	-	-	-	2,003
Stock options granted for compensation in subsidiaries	-	-	-	-	-	-	-	-	8,223	-	8,223
Restricted stock granted for compensation	-	-	-	-	-	-	-	-	822	-	822
Dividend in kind	-	-	-	-	-	-	-	(712)	712	-	-
Subsidiary shares retired to pay for employee's taxes	-	-	-	-	-	-	-	-	(98)	-	(98)
Subsidiary warrants exercised	-	-	-	-	-	-	-	-	11,700	-	11,700
Contingently issuable subsidiary warrants	-	-	-	-	-	-	-	-	65	-	65
Sale of treasury stock	-	-	-	(496)	421	1,857	-	-	-	-	1,361
Conversion of preferred stock to common stock	(70)	(3,500)	875	3,500	-	-	-	-	-	-	-
Dividends on preferred stock	-	-	-	(408)	-	-	(7)	-	-	-	(415)
Exercise of subsidiary options	-	-	-	-	-	-	-	-	33	-	33
Subsidiary shares issued in lieu of cash for services received	-	-	-	-	-	-	-	-	486	-	486
Outside investment in OncoCyte and Cell Cure	-	-	-	-	-	-	-	-	3,918	-	3,918
Sale of subsidiary shares at- the- market, net of fees paid and amortized	-	-	-	-	-	-	-	-	9,646	-	9,646
Foreign currency translation adjustment	-	-	-	-	-	-	-	-	-	(424)	(424)
Unrealized loss on available-for-sale securities	-	-	-	-	-	-	-	-	-	1	1
NET LOSS	-	-	-	-	-	-	-	(46,991)	(11,143)	-	(58,134)
BALANCE AT DECEMBER 31, 2015	-	$ -	94,894	$ 273,979	(4,473)	$ (18,033)	$ -	$ (229,893)	$ 50,631	$ (237)	$ 76,447
Sale of common shares, net of financing fees	-	-	8,420	18,606	-	-	-	-	-	-	18,606
Common shares issued for executive bonus in lieu of cash	-	-	68	200	-	-	-	-	-	-	200
Common shares issued for consulting services in lieu of cash	-	-	14	40	-	-	-	-	-	-	40
Stock-based compensation	-	-	-	2,731	-	-	-	-	-	-	2,731
Stock-based compensation in subsidiaries	-	-	-	-	-	-	-	-	5,220	-	5,220
Deconsolidation of Asterias	-	-	-	-	3,853	15,142	-	-	(21,752)	-	(6,610)
Subsidiary financing transactions with noncontrolling interests - Asterias	-	-	-	18,310	-	-	-	-	(18,310)	-	-
Subsidiary financing transactions with noncontrolling interests - OncoCyte	-	-	-	4,012	-	-	-	-	(4,012)	-	-
Distribution of Asterias warrants to its shareholders other than BioTime	-	-	-	-	-	-	-	-	3,125	-	3,125
Exercise of subsidiary options	-	-	-	-	-	-	-	-	2,151	-	2,151
Sale of common shares and warrants by OncoCyte, net of financing fees	-	-	-	-	-	-	-	-	9,777	-	9,777
Beneficial conversion feature on convertible debt issued to Cell Cure's noncontrolling interests	-	-	-	-	-	-	-	-	701	-	701
Foreign currency translation adjustment	-	-	-	-	-	-	-	-	-	(106)	(106)
Unrealized loss on available-for-sale securities	-	-	-	-	-	-	-	-	-	(395)	(395)
NET INCOME	-	-	-	-	-	-	-	33,572	(14,951)	-	18,621
BALANCE AT DECEMBER 31, 2016	-	$ -	103,396	$ 317,878	(620)	$ (2,891)	$ -	$ (196,321)	$ 12,580	$ (738)	$ 130,508
Sale of common shares, net of financing fees	-	-	18,511	45,068	-	-	-	-	-	-	45,068
Sale of common shares at the market, net of fees	-	-	300	835	-	-	-	-	-	-	835
Purchase of shares from a related party and retired	-	-	(300)	(843)	-	-	-	-	-	-	(843)
Shares issued upon vesting of restricted stock units, net of shares retired to pay employee's taxes	-	-	24	(46)	-	-	-	-	-	-	(46)
Common shares issued for consulting services in lieu of cash	-	-	1	3	-	-	-	-	-	-	3
Stock-based compensation			-	3,019							3,019
Stock-based compensation in subsidiaries	-	-	-	-	-	-	-	-	913	-	913
Exercise of options	-	-	9	25	-	-	-	-	-	-	25
Exercise of subsidiary options	-	-	-	-	-	-	-	-	4	-	4
Deconsolidation of OncoCyte	-	-	-	(3,253)	620	2,891	-	-	(8,512)	-	(8,874)
Sale of subsidiary shares in AgeX	-	-	-	100	-	-	-	-	9,868	-	9,968
Subsidiary financing transactions with noncontrolling interests – AgeX	-	-	-	8,207	-	-	-	-	(8,207)	-	-
Beneficial conversion feature on convertible debt issued to Cell Cure's noncontrolling interests	-	-	-	-	-	-	-	-	304	-	304
Foreign currency translation adjustment	-	-	-	-	-	-	-	-	-	668	668
Unrealized gain on available-for-sale securities	-	-	-	-	-	-	-	-	-	521	521
Subsidiary financing and other transactions with noncontrolling interests –LifeMap Sciences, LifeMap Solutions, OrthoCyte, and ReCyte, net	-	-	-	5,495	-	-	-	-	(5,495)	-	-
Common shares issued to purchase Cell Cure ordinary shares and Cell Cure Notes from noncontrolling interests in Cell Cure	-	-	4,925	15,217	-	-	-	-	-	-	15,217
Purchase of noncontrolling interests in Cell Cure	-	-	-	(10,117)	-	-	-	-	3,480	-	(6,637)
Purchase of beneficial conversion option at intrinsic value in Cell Cure Notes	-	-	-	(3,101)	-	-	-	-	-	-	(3,101)
NET LOSS	-	-	-	-	-	-	-	(19,976)	(3,313)	-	(23,289)
BALANCE AT DECEMBER 31, 2017	-	$ -	126,866	$ 378,487	-	$ -	$ -	$ (216,297)	$ 1,622	$ 451	$ 164,263

See accompanying notes to the consolidated financial statements.

BIOTIME, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(IN THOUSANDS)

	Year Ended December 31,		
	2017	**2016**	**2015**
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net income (loss) attributable to BioTime, Inc.	$ (19,976)	$ 33,572	$ (46,991)
Net loss allocable to non-controlling interest	(3,313)	(14,951)	(11,143)
Adjustments to reconcile net income (loss) attributable to BioTime, Inc. to net cash used in operating activities:			
Gain on deconsolidation of Asterias (Note 3)	-	(49,048)	-
Gain on deconsolidation of OncoCyte (Note 3)	(71,697)	-	-
Unrealized (gain) loss on equity method investment in Asterias at fair value	51,107	(34,361)	-
Unrealized loss on equity method investment in OncoCyte at fair value	2,935	-	-
BioTime's share of losses and impairment of Ascendance	-	4,671	35
Gain on sale of assets	(1,754)	-	(3,694)
Depreciation expense, including amortization of leasehold improvements	947	1,180	1,078
Amortization of intangible assets	2,349	3,577	5,256
Stock-based compensation	3,932	7,951	11,050
Liability classified warrants	797	-	-
Subsidiary shareholder expense for subsidiary warrants	-	3,125	-
Subsidiary common stock issued in lieu of cash for services	-	-	486
Amortization of discount on related party convertible debt	640	448	245
Deferred income tax benefit	-	-	(4,516)
Foreign currency remeasurement and other (gain) loss	(1,761)	2,251	345
Loss on extinguishment of related party debt	2,799	-	-
Changes in operating assets and liabilities:			
Accounts and grants receivable, net	(172)	187	(80)
Due from affiliates	1,157	-	-
Prepaid expenses and other current assets	145	(1,115)	(1,533)
Other long-term assets and liabilities	(22)	(56)	(120)
Accounts payable and accrued liabilities	1,299	12	1,673
Accrued interest on related party convertible debt	-	-	19
Deferred revenues and grant income	243	132	3,285
Deferred grant expense	(227)	-	-
Deferred rent liabilities	55	99	61
Net cash used in operating activities	(30,517)	(42,326)	(44,544)
CASH FLOWS FROM INVESTING ACTIVITIES:			
Deconsolidation of cash and cash equivalents of OncoCyte	(8,898)	-	-
Deconsolidation of cash and cash equivalents of Asterias	-	(8,376)	-
Purchase of property and equipment	(1,326)	(2,248)	(1,241)
Payments on construction in progress	-	(278)	(4,093)
Purchase of foreign available-for-sale securities	(189)	-	(748)
Proceeds from sale of assets	200	-	-
Payment for Ascendance equity method investment	-	-	(500)
Security deposit paid and other	(12)	13	(859)
Net cash used in investing activities	(10,225)	(10,889)	(7,441)

	Year Ended December 31,		
	2017	2016	2015
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from issuance of common shares	48,875	20,125	35,470
Fees paid on sale of common shares	(3,798)	(1,515)	-
Proceeds from sale of subsidiary common shares and warrants	9,968	10,721	13,639
Fees paid on sale of subsidiary common shares and warrants	-	(879)	(693)
Proceeds from sale of common shares at-the-market, net of fees	835	-	-
Purchase and retirement of common shares from a related party	(843)	-	-
Proceeds from issuance of related party convertible debt	425	1,757	255
Reimbursement from landlord on construction in progress	198	567	3,789
Proceeds from exercise of subsidiary stock options	4	2,151	33
Proceeds from exercise of stock options	25	-	621
Proceeds from exercise of warrants	-	-	20
Common shares received and retired for employee taxes paid	(45)	-	-
Repayment of lease liablity and capital lease obligation	(204)	(145)	(59)
Repayment of promissory notes	(49)	-	-
Proceeds from exercise of subsidiary warrants	-	-	11,700
Net cash provided by financing activities	55,391	32,782	64,775
Effect of exchange rate changes on cash and cash equivalents	101	292	(48)
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	14,750	(20,141)	12,742
CASH AND CASH EQUIVALENTS:			
At beginning of year	22,088	42,229	29,487
At end of year	$ 36,838	$ 22,088	$ 42,229
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:			
Cash paid during year for interest	$ 156	$ 94	$ 119
SUPPLEMENTAL SCHEDULE OF NONCASH FINANCING AND INVESTING ACTIVITIES:			
BioTime common stock issued to purchase Cell Cure ordinary shares and Convertible Notes from noncontrolling interests in Cell Cure	$ 15,217	$ -	$ -
Extinguishment of related party convertible debt, including accrued interest, with BioTime common stock	2,680	-	-
Capital expenditure funded by capital lease liability	151	626	34
Construction in progress in accounts payable and accrued expenses	-	-	524
Landlord receivable	-	-	567
Lease liability	-	1,385	4,400
Conversion of preferred stock to common stock	-	-	3,500
Promissory notes in exchange of preferred share dividends	-	-	363
Common stock issued in lieu of cash for bonus and services	-	240	-
Equity method investment in Ascendance in exchange for assets	-	-	4,706

See accompanying notes to the consolidated financial statements.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

1. Organization, Basis of Presentation and Liquidity

General – BioTime, Inc. ("BioTime" or the "Company") is a clinical-stage biotechnology company targeting degenerative diseases. BioTime's programs are based on two proprietary core technology platforms: cell replacement and cell/drug delivery. With the cell replacement platform, BioTime is creating new cells and tissues with its pluripotent and progenitor cell technologies. These cells and tissues are developed to replace those that are either rendered dysfunctional or lost due to degenerative diseases. BioTime's cell/drug delivery programs are based upon its proprietary *HyStem*® cell and drug delivery matrix technology. *HyStem*® was designed to provide for the transfer, retention, engraftment and metabolic support of cellular replacement therapy.

BioTime's lead cell replacement clinical product is *OpRegen*®, a retinal pigmented epithelium (RPE) cell replacement therapy, which is in a Phase I/IIa multicenter trial for the treatment of late-stage, dry age-related macular degeneration (dry-AMD). There are currently no FDA-approved therapies for dry-AMD, which accounts for approximately 90% of all age-related macular degeneration cases, and is the leading cause of blindness in people over the age of 60.

BioTime's lead cell delivery clinical product is *Renevia*®, a potential treatment for facial lipoatrophy. "Lipoatrophy" means the loss of fat tissue which can be caused by several factors, including trauma, aging or drug side effects such as those that cause HIV-associated lipoatrophy. BioTime is also developing *HyStem*® for the delivery of therapeutic drugs and cells to localized areas of the body, including for sustained drug release in the targeted area.

In 2017, BioTime formed AgeX Therapeutics, Inc. ("AgeX") to continue development of early-stage programs focusing on the development of technology relating to cell immortality and regenerative biology, to aging and age-related diseases. AgeX will focus on the development of regenerative medicine technologies targeting the diseases of aging and metabolic disorders. AgeX's initial programs focus on utilizing brown adipose tissue ("brown fat") in targeting diabetes, obesity, and heart disease; and induced tissue regeneration ("iTR") in utilizing the human body's own abilities to scarlessly regenerate tissues damaged from age or trauma. AgeX may also pursue other early-stage programs.

On August 17, 2017, AgeX completed an asset acquisition and stock sale pursuant to which it received certain assets from BioTime for use in its research and development programs and raised $10.0 million in cash from investors to finance its operations. This capitalization of AgeX has allowed BioTime to focus its resources on its clinical programs in its core therapeutic sectors. As of December 31, 2017, BioTime owned approximately 85% of the issued and outstanding shares of AgeX common stock (see Notes 2 and 10).

BioTime is also enabling early-stage programs in other new technologies through its own research programs as well as through other subsidiaries or affiliates.

BioTime also has significant equity holdings in two publicly traded companies, Asterias Biotherapeutics, Inc. ("Asterias") and OncoCyte Corporation ("OncoCyte"), which BioTime founded and, until recently, were majority-owned and consolidated subsidiaries. Asterias (NYSE American: AST) is presently focused on advancing three clinical-stage programs that have the potential to address areas of high, unmet medical need in the fields of neurology (spinal cord injury) and oncology (acute myeloid leukemia and lung cancer). OncoCyte (NYSE American: OCX) is developing confirmatory diagnostic tests for lung cancer, breast cancer, and bladder cancer utilizing novel liquid biopsy technology.

On February 17, 2017, BioTime's ownership of OncoCyte declined below 50% after certain OncoCyte investors acquired OncoCyte common stock by exercising OncoCyte stock purchase warrants, and BioTime deconsolidated the financial statements of OncoCyte from its consolidated financial statements (the "OncoCyte Deconsolidation") (see Note 3). Since February 17, 2017, BioTime has accounted for OncoCyte using the equity method of accounting at fair value (see Note 4).

On May 13, 2016, BioTime BioTime's percentage ownership in Asterias declined below 50% as a result of Asterias' public offering of its common stock to raise capital for its operations and BioTime deconsolidated the financial statements of Asterias from its consolidated financial statements (the "Asterias Deconsolidation") (see Note 3). Since May 13, 2016, BioTime has accounted for the Asterias common stock it holds using the equity method of accounting at fair value (see Note 5).

Use of estimates - The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the U.S. ("GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period with consideration given to materiality. Significant estimates and assumptions which are subject to significant judgment include those related to going concern assessment of consolidated financial statements, useful lives associated with long-lived assets, including evaluation of asset impairment, allowances for uncollectible accounts receivables, loss contingencies, deferred income taxes and tax reserves, including valuation allowances related to deferred income taxes, and assumptions used to value stock-based awards, debt or other equity instruments. Actual results could differ materially from those estimates.

Principles of consolidation – BioTime's consolidated financial statements include the accounts of its subsidiaries. The following table reflects BioTime's ownership, directly or through one or more subsidiaries, of the outstanding shares of its operating subsidiaries as of December 31, 2017.

Subsidiary	Field of Business	BioTime Ownership	Country
Cell Cure Neurosciences Ltd. ("Cell Cure")	Products to treat age-related macular degeneration	98.8%(1)	Israel
ES Cell International Pte. Ltd. ("ESI")	Stem cell products for research, including clinical grade cell lines produced under cGMP	100%	Singapore
OrthoCyte Corporation ("OrthoCyte")	Developing bone grafting products for orthopedic diseases and injuries	99.8%	USA
AgeX Therapeutics, Inc. ("AgeX")	*PureStem*® progenitor cell lines, brown adipose fat, induced tissue regeneration technology, and pre-clinical cardiovascular therapy research and development	85.4%	USA
ReCyte Therapeutics, Inc. ("ReCyte Therapeutics") (2)	Research and development involved in stem cell-derived endothelial and cardiovascular related progenitor cells for the treatment of vascular disorders, ischemic conditions and brown adipocytes for type-2 diabetes and obesity	94.8%	USA
LifeMap Sciences, Inc. ("LifeMap Sciences") (2), (3)	Biomedical, gene, disease, and stem cell databases and tools	81.7%	USA

(1) Includes shares owned by BioTime and ESI

(2) ReCyte Therapeutics and LifeMap Sciences are subsidiaries of AgeX

(3) LifeMap Sciences, Ltd. (Israel) is a wholly-owned subsidiary of LifeMap Sciences

All material intercompany accounts and transactions have been eliminated in consolidation. As of December 31, 2017, BioTime consolidated its direct and indirect wholly-owned or majority-owned subsidiaries because BioTime has the ability to control their operating and financial decisions and policies through its ownership, and the noncontrolling interest is reflected as a separate element of shareholders' equity on BioTime's consolidated balance sheets.

Liquidity – Since inception, BioTime has incurred significant operating losses and has funded its operations primarily through the issuance of equity securities, payments from research grants, royalties from product sales and sales of research products and services. At December 31, 2017, BioTime had an accumulated deficit of approximately $216.3 million, working capital of $35.7 million and shareholders' equity of $164.3 million. BioTime has evaluated its projected cash flows and believes that its cash, cash equivalents and available-for-sale securities of $38.2 million as of December 31, 2017, provide sufficient cash, cash equivalents, and liquidity to carry out BioTime's current operations through at least twelve months from the issuance date of the consolidated financial statements included herein. BioTime also holds shares of Asterias and OncoCyte common stock with a combined value of $117.2 million at December 31, 2017. Although BioTime has no present plans to liquidate its holdings of Asterias or OncoCyte shares, if BioTime needs near term working capital or liquidity to supplement its cash and cash equivalents for its operations, BioTime may sell some, or all, of its Asterias or OncoCyte shares, as necessary.

BioTime's projected cash flows are subject to various risks and uncertainties, and the unavailability or inadequacy of financing to meet future capital needs could force it to modify, curtail, delay, or suspend some or all aspects of its planned operations. BioTime's determination as to when it will seek new financing and the amount of financing that it will need will be based on its evaluation of the progress it makes in its research and development programs, any changes to the scope and focus of those programs, and projection of future costs, revenues, and rates of expenditure. For example, clinical trials being conducted for its *OpRegen*® program will be funded in part with funds from grants and not from cash on hand. If BioTime were to lose grant funding or is unable to continue to provide working capital to the *OpRegen*® program, it may be required to delay, postpone, or cancel the clinical trials or limit the number of clinical trial sites, unless BioTime is able to obtain adequate financing from another source that could be used for the clinical trials. BioTime cannot assure that adequate financing will be available on favorable terms, if at all. Sales of additional equity securities by BioTime or its subsidiaries could result in the dilution of the interests of present shareholders.

As further discussed in Note 10, on August 17, 2017, AgeX completed an asset acquisition and stock sale pursuant to which it received certain assets from BioTime for use in its research and development programs and raised $10.0 million in cash from investors to finance its operations. However, BioTime cannot assure that adequate financing will be available to AgeX in the future to fund the AgeX programs.

2. Summary of Significant Accounting Policies

Going concern assessment – BioTime assesses going concern uncertainty for its consolidated financial statements to determine if BioTime has sufficient cash and cash equivalents on hand and working capital to operate for a period of at least one year from the date the consolidated financial statements are issued or are available to be issued, which is referred to as the "look-forward period" as defined by FASB's ASU No. 2014-15. As part of this assessment, based on conditions that are known and reasonably knowable to BioTime, BioTime will consider various scenarios, forecasts, projections, and estimates, and BioTime will make certain key assumptions, including the timing and nature of projected cash expenditures or programs, and its ability to delay or curtail those expenditures or programs, if necessary, among other factors. Based on this assessment, as necessary or applicable, BioTime makes certain assumptions concerning its ability to curtail or delay research and development programs and expenditures within the look-forward period in accordance with ASU No. 2014-15.

Revenue recognition – BioTime complies with Accounting Standards Codification, ASC 605-10 and recognizes revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price is fixed or determinable, and collectability is reasonably assured. BioTime accounts for grants received to perform research and development services in accordance with ASC 730-20, *Research and Development Arrangements*, which requires an assessment at the inception of the grant whether the grant is a liability or a contract to perform research and development services for others. If the company receiving the grant is obligated to repay the grant funds to the grantor regardless of the outcome of the research and development activities, then the company is required to estimate and recognize that liability. Alternatively, if the company receiving the grant is not required to repay, or if it is required to repay the grant funds only if the research and development activities are successful, then the grant agreement is accounted for as a contract to perform research and development services for others. In this case, grant income is recognized when the related research and development expenses are incurred. Revenues from the sale of research products and services are primarily derived from the sale of hydrogels and stem cell products and are recognized when earned. Royalty revenues consist of product royalty payments. Royalties earned on product sales are recognized as revenue in the quarter in which the royalty reports are received rather than the quarter in which the sales took place. License fee revenues consist of fees under license agreements and are recognized when earned and reasonably estimable and, also include subscription and advertising revenue from LifeMap Sciences' online databases based upon applicable subscription or advertising periods. When BioTime or a subsidiary is entitled to receive up-front nonrefundable licensing or similar fees pursuant to agreements under which BioTime or its subsidiary has no continuing performance obligations, the fees are recognized as revenues when collection is reasonably assured. When BioTime or a subsidiary receives up-front nonrefundable licensing or similar fees pursuant to agreements under which BioTime or its subsidiary does have continuing performance obligations, the fees are deferred and amortized ratably over the performance period. If the performance period cannot be reasonably estimated, BioTime amortizes nonrefundable fees over the life of the contract until such time that the performance period can be more reasonably estimated. Milestone payments, if any, related to scientific or technical achievements, subject to substantial uncertainty, are recognized in income when the milestone is accomplished if (a) substantive effort was required to achieve the milestone, (b) the amount of the milestone payment appears reasonably commensurate with the effort expended, and (c) collection of the payment is reasonably assured.

Cost of sales – BioTime accounts for the cost of research products acquired for sale and any royalties paid as a result of any revenues in accordance with the terms of the applicable licensing agreements as cost of sales on the consolidated statements of operations.

Cash and cash equivalents – BioTime considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents. As of December 31, 2017 and 2016, BioTime had $32.1 million and $16.8 million in money market funds, respectively, considered to be cash equivalents.

Restricted cash – BioTime has a certificate of deposit in the amount of $847,000 included in deposits and other long-term assets as of December 31, 2017, as required under the Alameda Lease discussed in Note 12, as BioTime is restricted from using the cash for working capital purposes. On February 13, 2018, the landlord reduced the security deposit to $424,000 pursuant to the lease agreement.

Trade accounts and grants receivable, net – Net trade receivables amounted to $139,000 and $344,000 and grants receivable amounted to $641,000 and $102,000 as of December 31, 2017 and 2016, respectively. Net trade receivables include allowance for doubtful accounts of approximately $422,000 and $543,000 as of December 31, 2017 and 2016, respectively, for those amounts deemed uncollectible by BioTime. BioTime establishes an allowance for doubtful accounts based on the evaluation of the collectability of its receivables on a variety of factors, including the length of time receivables are past due, significant events that may impair the customer's ability to pay, such as a bankruptcy filing or deterioration in the customer's operating results or financial position, and historical experience. If circumstances related to customers change, estimates of the recoverability of receivables would be further adjusted.

Concentrations of credit risk – Financial instruments that potentially subject BioTime to significant concentrations of credit risk consist primarily of cash and cash equivalents. BioTime limits the amount of credit exposure of cash balances by maintaining its accounts in high credit quality financial institutions. Cash equivalent deposits with financial institutions may occasionally exceed the limits of insurance on bank deposits; however, BioTime has not experienced any losses on such accounts.

Fair Value Measurements – Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. To increase the comparability of fair value measures, the following hierarchy prioritizes the inputs to valuation methodologies used to measure fair value (ASC 820-10-50), *Fair Value Measurements and Disclosures*:

- Level 1 – Inputs to the valuation methodology are quoted prices (unadjusted) for identical assets or liabilities in active markets.

- Level 2 – Inputs to the valuation methodology include quoted prices for similar assets or liabilities in active markets, and inputs that are observable for the assets or liability, either directly or indirectly, for substantially the full term of the financial instruments.

- Level 3 – Inputs to the valuation methodology are unobservable; that reflect management's own assumptions about the assumptions market participants would make and significant to the fair value.

In determining fair value, BioTime utilizes valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible, and also considers counterparty credit risk in its assessment of fair value. For the periods presented, BioTime has no financial assets or liabilities recorded at fair value on a recurring basis, except for cash and cash equivalents consisting of money market funds, shares BioTime holds in Asterias and OncoCyte and the available-for-sale securities, which are carried at fair value based on the applicable period-end quoted market prices as a Level 1 input. BioTime also has certain liability classified warrants issued by Cell Cure which are carried at fair value based on Level 3 inputs (see Note 10).

The fair value of BioTime's assets and liabilities, which qualify as financial instruments under FASB guidance regarding disclosures about fair value of financial instruments, approximate the carrying amounts presented in the accompanying consolidated balance sheets. The carrying amounts of accounts receivable, prepaid expenses and other current assets, accounts payable, accrued expenses and other current liabilities approximate fair values because of the short-term nature of these items.

Equity method accounting for Asterias and OncoCyte, at fair value – BioTime uses the equity method of accounting when it has the ability to exercise significant influence, but not control, as determined in accordance with GAAP, over the operating and financial policies of a company. For equity method investments which BioTime has elected to measure at fair value, unrealized gains and losses are reported in the consolidated statements of operations in other income and expenses, net.

As further discussed in Notes 4 and 5, BioTime has elected to account for its Asterias and OncoCyte shares at fair value using the equity method of accounting because beginning on May 13, 2016 and February 17, 2017, the respective dates on which BioTime deconsolidated Asterias and OncoCyte, BioTime has not had control of Asterias and OncoCyte, as defined by GAAP since the applicable deconsolidation dates, but BioTime continues to exercise significant influence over Asterias and OncoCyte. Under the fair value method, the value of the shares of common stock BioTime holds in Asterias and OncoCyte is marked to market at each balance sheet date using the closing prices of Asterias and OncoCyte common stock on the NYSE American multiplied by the number of shares of Asterias and OncoCyte held by BioTime, with changes in the fair value of the Asterias and OncoCyte shares included in other income and expenses, net, in the consolidated statements of operations. The Asterias and OncoCyte shares are considered level 1 assets as defined by ASC 820.

Available-for-sale securities in foreign investments – BioTime accounts for the shares it holds in foreign equity securities as available-for-sale in accordance with ASC 320-10-25, *Investments – Debt and Equity Securities*, as the shares have a readily determinable fair value quoted on the Tel Aviv Stock Exchange ("TASE") (under trading symbol "HDST"). These securities are held principally as available-for-sale to meet future working capital needs and are denominated in New Israeli Shekels (NIS). The securities are measured at fair value and reported as current assets on the consolidated balance sheets based on the closing trading price of the security as of the date being presented. Unrealized holding gains and losses, including changes in foreign currency exchange rates, are reported in other comprehensive income or loss, net of tax, and are a component of the accumulated other comprehensive income or loss on the consolidated balance sheet. Realized gains and losses, and declines in value judged to be other-than-temporary related to equity securities, are included in other income or expenses, net, in the consolidated statements of operations.

Property, plant and equipment, net – Property, plant and equipment is stated at cost and is being depreciated using the straight-line method over their estimated useful lives ranging from 3 to 10 years. Leasehold improvements are amortized over the shorter of the useful life or the lease term.

Long-lived intangible assets – Long-lived intangible assets, consisting primarily of acquired patents, patent applications, and licenses to use certain patents are stated at acquired cost, less accumulated amortization. Amortization expense is computed using the straight-line method over the estimated useful lives of the assets, generally over 10 years.

Impairment of long-lived assets – Long-lived assets, including long-lived intangible assets, are reviewed annually for impairment and whenever events or changes in circumstances indicate that the carrying amount of an asset may not be fully recoverable. If an impairment indicator is present, BioTime evaluates recoverability by a comparison of the carrying amount of the assets to future undiscounted net cash flows expected to be generated by the assets. If the assets are impaired, the impairment recognized is measured by the amount by which the carrying amount exceeds the estimated fair value of the assets.

Treasury stock – BioTime accounts for BioTime common shares issued to subsidiaries for future potential working capital needs as treasury stock on the consolidated balance sheet. BioTime has registered the BioTime common shares held by its subsidiaries for sale under the Securities Act of 1933, as amended (the "Securities Act") to enhance the marketability of the shares. Beginning on May 13, 2016 and February 17, 2017, the respective dates on which BioTime deconsolidated Asterias and OncoCyte, shares issued to those former subsidiaries are not treasury stock to BioTime and are included in BioTime's total issued and outstanding common stock (see Note 10).

Accounting for warrants – BioTime determines the accounting classification of warrants that it or its subsidiaries issue, as either liability or equity, by first assessing whether the warrants meet liability classification in accordance with ASC 480-10, *Accounting for Certain Financial Instruments with Characteristics of both Liabilities and Equity*, and then in accordance with ASC 815-40, *Accounting for Derivative Financial Instruments Indexed to, and Potentially Settled in, a Company's Own Stock*. Under ASC 480, warrants are considered liability classified if the warrants are mandatorily redeemable, obligate the issuer to settle the warrants or the underlying shares by paying cash or other assets, or warrants that must or may require settlement by issuing variable number of shares. If warrants do not meet liability classification under ASC 480-10, BioTime assesses the requirements under ASC 815-40, which states that contracts that require or may require the issuer to settle the contract for cash are liabilities recorded at fair value, irrespective of the likelihood of the transaction occurring that triggers the net cash settlement feature. If the warrants do not require liability classification under ASC 815-40, in order to conclude equity classification, BioTime assesses whether the warrants are indexed to its common stock or its subsidiary's common stock, as applicable, and whether the warrants are classified as equity under ASC 815-40 or other applicable GAAP. After all relevant assessments are made, BioTime concludes whether the warrants are classified as liability or equity. Liability classified warrants are required to be accounted for at fair value both on the date of issuance and on subsequent accounting period ending dates, with all changes in fair value after the issuance date recorded in the consolidated statements of operations as a gain or loss. Equity classified warrants are accounted for at fair value on the issuance date with no changes in fair value recognized subsequent to the issuance date. In 2017, Cell Cure issued certain liability classified warrants (see Note 9).

Investments in Common Stock of Privately Held Companies – BioTime evaluates whether investments held in common stock of an investee require consolidation of the entity under, first, the variable interest entity ("VIE") model, and then under the Voting Interest model in accordance with accounting guidance for consolidations under Accounting Standards Codification ("ASC") 810-10. If consolidation of the entity is not required under either the VIE model or the Voting Interest model, BioTime determines whether the equity method of accounting should be applied in accordance with ASC 323, *Investments – Equity Method and Joint Ventures*. The equity method applies to investments in common stock or in-substance common stock if BioTime exercises significant influence over, but does not control, the entity, typically represented by ownership of 20% or more of the voting interests of an entity.

BioTime initially records equity method investments at fair value on the date of the acquisition with subsequent adjustments to the investment balance based on BioTime's share of earnings or losses from the investment included in other income or expenses, net, on the consolidated statements of operations. The equity method investment balance is shown in noncurrent assets on the consolidated balance sheets.

BioTime reviews investments accounted for under the equity method for impairment whenever events or changes in circumstances indicate that the carrying amount of the investment may not be fully recoverable. If a determination is made that an "other-than-temporary" impairment exists, BioTime writes down its investment to fair value. Based on an evaluation and continuing losses and negative cash flows generated from the Ascendance investment, including uncertainty as to Ascendance's ability to raise sufficient financing, BioTime determined that an other-than-temporary impairment existed on its equity method investment in Ascendance as of December 31, 2016, and BioTime wrote down the entire remaining $3.5 million carrying value of that investment included in other income and expenses, net.

Transactions with Noncontrolling Interests of Subsidiaries – BioTime accounts for a change in ownership interests in its subsidiaries that does not result in a change of control of the subsidiary by BioTime under the provisions of ASC 810-10-45-23, *Consolidation – Other Presentation Matters*, which prescribes the accounting for changes in ownership interest that do not result in a change in control of the subsidiary, as defined by GAAP, before and after the transaction. Under this guidance, changes in a controlling shareholder's ownership interest that do not result in a change of control, as defined by GAAP, in the subsidiary are accounted for as equity transactions. Thus, if the controlling shareholder retains control, no gain or loss is recognized in the statements of operations of the controlling shareholder. Similarly, the controlling shareholder will not record any additional acquisition adjustments to reflect its subsequent purchases of additional shares in the subsidiary if there is no change of control. Only a proportional and immediate transfer of carrying value between the controlling and the noncontrolling shareholders occurs based on the respective ownership percentages.

Research and development – Research and development expenses consist of costs incurred for company-sponsored, collaborative and contracted research and development activities. These costs include direct and research-related overhead expenses including compensation and related benefits, stock-based compensation, consulting fees, research and laboratory fees, rent of research facilities, amortization of intangible assets, and license fees paid to third parties to acquire patents or licenses to use patents and other technology. Research and development are expensed as incurred. Research and development expenses incurred and reimbursed by grants from third parties approximate the grant income recognized in the consolidated statements of operations.

General and administrative – General and administrative expenses consist of compensation and related benefits, including stock-based compensation, for executive and corporate personnel; professional and consulting fees; and allocated overhead such as facilities and equipment rent and maintenance, insurance costs allocated to general and administrative expenses, costs of patent applications, prosecution and maintenance, stock exchange-related costs, depreciation expense, marketing costs, and other miscellaneous expenses which are allocated to general and administrative expense.

Foreign currency translation and other comprehensive loss, foreign currency transaction gains and losses – In countries in which BioTime operates where the functional currency is other than the U.S. dollar, assets and liabilities are translated using published exchange rates in effect at the consolidated balance sheet date. Revenues and expenses and cash flows are translated using an approximate weighted average exchange rate for the period. Resulting translation adjustments are recorded as a component of accumulated other comprehensive income or loss on the consolidated balance sheet. For the years ended December 31, 2017, 2016 and 2015, comprehensive income (loss) includes foreign currency translation adjustments, net of tax, of $668,000, ($106,000) and ($424,000), respectively.

For transactions denominated in other than the functional currency of BioTime or its subsidiaries, BioTime recognizes transaction gains and losses in the consolidated statements of operations and classifies the gain or loss based on the nature of the item that generated it. The majority of BioTime's foreign currency transaction gains and losses are generated by Cell Cure's intercompany debt due to BioTime (see Note 9), which are U.S. dollar-denominated, while Cell Cure's functional currency is NIS. Accordingly, foreign currency remeasurement gains and losses related to this debt are included in other income and expenses, net.

Income taxes – BioTime accounts for income taxes in accordance with ASC 740, *Income Taxes*, which prescribe the use of the asset and liability method, whereby deferred tax asset or liability account balances are calculated at the balance sheet date using current tax laws and rates in effect. Valuation allowances are established when necessary to reduce deferred tax assets when it is more likely than not that a portion or all of the deferred tax assets will not be realized. ASC 740 guidance also prescribes a recognition threshold and a measurement attribute for the financial statement recognition and measurement of tax positions taken or expected to be taken in a tax return. For benefits to be recognized, a tax position must be more-likely-than-not sustainable upon examination by taxing authorities. BioTime files a U.S. federal income tax return as well as various state and foreign income tax returns. BioTime's judgments regarding future taxable income may change over time due to changes in market conditions, changes in tax laws, tax planning strategies or other factors. Certain majority-owned subsidiaries that BioTime consolidates under GAAP file their own, standalone federal income tax returns as those subsidiaries are not considered consolidated under federal income tax regulations, and accordingly, BioTime and those subsidiaries may not use each other's tax attributes. If BioTime assumptions, and consequently the estimates, change in the future with respect to BioTime's own deferred tax assets and liabilities, the valuation allowance may be increased or decreased, which may have a material impact on BioTime's consolidated financial statements. BioTime recognizes accrued interest and penalties related to unrecognized tax benefits, if any, as income tax expense, however, no amounts were accrued for the payment of interest and penalties as of December 31, 2017 and 2016.

On December 22, 2017, the United States enacted major federal tax reform legislation, Public Law No. 115-97, commonly referred to as the 2017 Tax Cuts and Jobs Act ("2017 Tax Act"), which enacted a broad range of changes to the Internal Revenue Code. Changes to taxes on corporations impacted by the 2017 Tax Act include, among others, lowering the U.S. federal tax rates to a 21 percent flat tax rate, eliminating the corporate alternative minimum tax ("AMT"), imposing additional limitations on the deductibility of interest and net operating losses, allowing any net operating loss ("NOLs") generated in tax years ending after December 31, 2017 to be carried forward indefinitely and generally repealing carrybacks, reducing the maximum deduction for NOL carryforwards arising in tax years beginning after 2017 to a percentage of the taxpayer's taxable income, and allowing for the expensing of certain capital expenditures. The 2017 Tax Act also puts into effect a number of changes impacting operations outside of the United States including, but not limited to, the imposition of a one-time tax "deemed repatriation" on accumulated offshore earnings not previously subject to U.S. tax, and shifts the U.S taxation of multinational corporations from a worldwide system of taxation to a territorial system. ASC 740 requires the effects of changes in tax rates and laws on deferred tax balances (including the effects of the one-time transition tax) to be recognized in the period in which the legislation is enacted (see Note 13).

On December 22, 2017, the SEC staff issued Staff Accounting Bulletin No. 118 ("SAB 118") to provide guidance for companies that are not able to complete their accounting for the income tax effects of the 2017 Tax Act in the period of enactment. SAB 118 allows BioTime to record provisional amounts during a measurement period not to extend beyond one year of the enactment date (see Note 13).

Stock-based compensation – BioTime follows accounting standards governing share-based payments, which require the measurement and recognition of compensation expense for all share-based payment awards made to directors and employees, including employee stock options, based on estimated fair values. Upon adoption of ASU 2016-09 on January 1, 2017, forfeitures are accounted for as they occur instead of based on the number of awards that were expected to vest prior to adoption of ASU 2016-09. Based on the nature and timing of grants, straight line expense attribution of stock-based compensation for the entire award and the relatively low forfeiture rates on BioTime's experience, the impact of adoption of ASU 2016-09 pertaining to forfeitures was not material to the consolidated financial statements. BioTime utilizes the Black-Scholes-Merton option pricing model for valuing share-based payment awards. BioTime's determination of fair value of share-based payment awards on the date of grant using that option-pricing model is affected by BioTime's stock price as well as by assumptions regarding a number of complex and subjective variables. These variables include, but are not limited to, BioTime's expected stock price volatility over the term of the awards; the expected term of options granted, derived from historical data on employee exercises and post-vesting employment termination behavior; and a risk-free interest rate based on the U.S. Treasury rates in effect during the corresponding period of grant.

Certain of BioTime's privately-held consolidated subsidiaries have their own share-based compensation plans. For share-based compensation awards granted by those privately-held consolidated subsidiaries under their respective equity plans, BioTime determines the expected stock price volatility using historical prices of comparable public company common stock for a period equal to the expected term of the options. The expected term of privately-held subsidiary options is based upon the "simplified method" provided under *Staff Accounting Bulletin, Topic 14*, or SAB Topic 14. The fair value of the shares of common stock underlying the stock options of the privately-held consolidated subsidiaries is determined by the Board of Directors of those subsidiaries, as applicable, which is also used to determine the exercise prices of the stock options at the time of grant.

Although the fair value of employee stock options is determined in accordance with FASB guidance, changes in the assumptions can materially affect the estimated value and therefore the amount of compensation expense recognized in the consolidated financial statements.

Basic and diluted net income (loss) per share attributable to common shareholders – Basic earnings per share is calculated by dividing net income or loss attributable to BioTime common shareholders by the weighted average number of common shares outstanding, net of unvested restricted stock or restricted stock units, subject to repurchase by BioTime, if any, during the period. Diluted earnings per share is calculated by dividing the net income or loss attributable to BioTime common shareholders by the weighted average number of common shares outstanding, adjusted for the effects of potentially dilutive common shares issuable under outstanding stock options and warrants, using the treasury-stock method, convertible preferred stock, if any, using the if-converted method, and treasury stock held by subsidiaries, if any.

For the year ended December 31, 2016, the primary components of weighted average shares of potentially dilutive common shares used to compute diluted net income per common share were approximately 2,030,000 BioTime common shares held by Asterias and OncoCyte (see Note 10), and approximately 206,000 restricted stock units and outstanding stock options.

For the years ended December 31, 2017 and 2015, because BioTime reported a net loss attributable to common stockholders, all potentially dilutive common stock is antidilutive.

The following common share equivalents were excluded from the computation of diluted net income (loss) per common share for the periods presented because including them would have been antidilutive (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Stock options	7,983	6,852	5,194
Warrants	9,395	9,395	10,109
Treasury stock	81	-	4,472

Adoption of ASU 2016-09, Improvements to Employee Share-Based Payment Accounting In March 2016, the FASB issued ASU 2016-09, *Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting*, which simplifies several aspects of the accounting for share-based payment transactions, including the income tax consequences, forfeitures, classification of awards as either equity or liabilities, and classification on the statement of cash flows. BioTime adopted ASU 2016-09 beginning on January 1, 2017.

In connection with the adoption of ASU 2016-09, BioTime changed its accounting policies, including how it accounts for excess tax benefits and deficiencies, if any, and forfeitures, as applicable. All excess tax benefits and tax deficiencies from stock based compensation awards accounted for under ASC 718 are recognized as an income tax benefit or expense, respectively, in the consolidated statements of operations. Prior to the adoption of ASU 2016-09, BioTime recognized excess tax benefits, if any, in additional paid-in capital only if the tax deduction reduced cash income taxes payable and, excess tax deficiencies were recognized as an offset to accumulated excess tax benefits, if any, on BioTime's consolidated statements of operations. An excess income tax benefit arises when the tax deduction of a share-based award for income tax purposes exceeds the compensation cost recognized for financial reporting purposes and, a tax deficiency arises when the compensation cost exceeds the tax deduction. Because BioTime had an insignificant number of stock option exercises during the year ended December 31, 2017, and because of BioTime's full valuation allowance as of December 31, 2017 and 2016, the impact to BioTime's consolidated statements of operations for any excess tax benefits or deficiencies was immaterial (see Note 13).

Forfeitures are now accounted for as they occur instead of based on the number of awards that were expected to vest. Based on (i) the nature and timing of BioTime's grants, straight line expense attribution of stock based compensation for the entire award, and (ii) the relatively low forfeiture rates on BioTime's experience, the impact of adoption of ASU 2016-09 pertaining to forfeitures was not material to BioTime's consolidated financial statements.

Recently Issued Accounting Pronouncements – The following accounting standards, which are not yet effective, are presently being evaluated by BioTime to determine the impact that they might have on its consolidated financial statements.

In May 2014, the FASB issued ASU 2014-09, "Revenue from Contracts with Customers (Topic 606)", which supersedes nearly all existing revenue recognition guidance under GAAP. The core principle of ASU 2014-09 is to recognize revenues when promised goods or services are transferred to customers in an amount that reflects the consideration to which an entity expects to be entitled for those goods or services. ASU 2014-09 defines a five-step process to achieve this core principle and, in doing so, more judgments and estimates may be required in the revenue recognition process than are required under existing GAAP. The revised revenue standard is effective for public entities for annual periods beginning after December 15, 2017, and interim periods therein, using either of the following transition methods: (i) a full retrospective approach reflecting the application of the standard in each prior reporting period with the option to elect certain practical expedients; or (ii) a retrospective approach with the cumulative effect of initially adopting ASU 2014-09 recognized at the date of adoption (which includes additional footnote disclosures).

The evaluation of the impact of adoption of ASU 2014-09 (Topic 606) on existing contracts with customers is still in process; however, BioTime does not expect the adoption of the new guidance will have a material impact to its consolidated financial statements. In performing this evaluation, BioTime has identified certain changes to business processes and internal controls relating to contracts and disclosures that are needed upon the adoption of the new guidance. BioTime will adopt this new standard on January 1, 2018, and plans on using the modified retrospective transition method, which requires the application of the new standard only to those contracts that were not completed as of the adoption date. Upon adoption of ASU 2014-09 and, if necessary, BioTime will recognize the cumulative effect of adopting this guidance as an adjustment to the opening consolidated accumulated deficit balance as of January 1, 2018. BioTime will continue to monitor industry activities and any additional guidance provided by regulators, standards setters, or the accounting profession and adjust its assessment and implementation plans accordingly.

In February 2016, the FASB issued ASU 2016-02, “Leases (Topic 842)”, which requires lessees to recognize assets and liabilities for leases with lease terms greater than twelve months in the statement of financial position. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement. ASU 2016-02 also requires improved disclosures to help users of financial statements better understand the amount, timing and uncertainty of cash flows arising from leases. The update is effective for fiscal years beginning after December 15, 2018, including interim reporting periods within that reporting period. Early adoption is permitted. BioTime is currently evaluating the impact the adoption of ASU 2016-02 will have on its consolidated financial statements.

On January 5, 2016, the FASB issued Accounting Standards Update 2016-01, “Financial Instruments–Overall: Recognition and Measurement of Financial Assets and Financial Liabilities” (ASU 2016-01). Changes to the GAAP model primarily affect the accounting for equity investments, financial liabilities under the fair value option, and the presentation and disclosure requirements for financial instruments. In addition, the ASU 2016-01 clarified guidance related to the valuation allowance assessment when recognizing deferred tax assets resulting from unrealized losses on available-for-sale debt securities. The accounting for other financial instruments, such as loans, investments in debt securities, and financial liabilities is largely unchanged. The more significant amendments are to equity investments in unconsolidated entities. In accordance with ASU 2016-01, all equity investments in unconsolidated entities (other than those accounted for using the equity method of accounting) will generally be measured at fair value through earnings. There will no longer be an available-for-sale classification (changes in fair value reported in other comprehensive income) for equity securities with readily determinable fair values. The classification and measurement guidance will be effective for public business entities in fiscal years beginning after December 15, 2017, including interim periods within those fiscal years. Based on the current accounting for the HBL shares BioTime holds as available-for-sale foreign equity securities, BioTime does not expect the adoption of ASU 2016-01 will have a material impact to its consolidated financial statements.

3. Deconsolidation of OncoCyte and Asterias

On February 17, 2017, OncoCyte issued 625,000 shares of OncoCyte common stock to certain investors who exercised their OncoCyte warrants. The warrants had been issued as part of OncoCyte’s financing that was completed on August 29, 2016. As a result of the issuance of the 625,000 shares of OncoCyte common stock, beginning on February 17, 2017, BioTime owned less than 50% of the OncoCyte outstanding common stock and experienced a loss of control of the OncoCyte subsidiary. Under GAAP, loss of control of a subsidiary is deemed to have occurred when, among other things, a parent company owns less than a majority of the outstanding common stock of the subsidiary, lacks a controlling financial interest in the subsidiary, and is unable to unilaterally control the subsidiary through other means such as having the ability or being able to obtain the ability to elect a majority of the subsidiary’s Board of Directors. BioTime determined that all of those loss of control factors were present with respect to OncoCyte on February 17, 2017. Accordingly, BioTime deconsolidated OncoCyte’s financial statements and results of operations from BioTime, effective February 17, 2017, in accordance with ASC, 810-10-40-4(c), *Consolidation*, referred to as the “OncoCyte Deconsolidation”. For periods on and after February 17, 2017, BioTime is accounting for its retained noncontrolling investment in OncoCyte under the equity method of accounting and has elected the fair value option under ASC 825-10, *Financial Instruments* (see Note 4).

In connection with the OncoCyte Deconsolidation and in accordance with ASC 810-10-40-5, BioTime recorded a gain on deconsolidation of $71.7 million which is included in other income and expenses, net, in the condensed consolidated statements of operations for the year ended December 31, 2017.

BioTime held 14.7 million shares of OncoCyte common stock, or approximately 46.7% of OncoCyte outstanding common stock, as of December 31, 2017.

On May 13, 2016, Asterias completed the sale of 5,147,059 shares of its common stock and warrants to purchase 2,959,559 shares of its common stock, through an underwritten public offering (the “Asterias Offering”). As a result of the sale of Asterias common stock in the Asterias Offering and the issuance of 708,333 shares of Asterias common stock upon the exercise of certain stock options by a former Asterias executive, as of May 13, 2016, BioTime’s percentage ownership of the outstanding common stock of Asterias declined below 50%. On May 13, 2016, BioTime experienced a loss of control of Asterias under GAAP. Accordingly, BioTime has deconsolidated Asterias financial statements and results of operations from BioTime (the “Asterias Deconsolidation”), effective May 13, 2016, in accordance with ASC, 810-10-40-4(c), *Consolidation*. For periods on and after May 13, 2016, BioTime is accounting for the retained non-controlling interest in Asterias under the equity method of accounting and has elected the fair value option under ASC 825-10, *Financial Instruments*. (see Note 5)

In connection with the Asterias Deconsolidation and in accordance with ASC 810-10-40-5, BioTime recorded a gain on deconsolidation of $49.0 million during the year December 31, 2016 included in other income and expenses, net, in the consolidated statements of operations.

BioTime held 21.7 million shares of Asterias common stock, or approximately 40.2% of Asterias outstanding common stock, as of December 31, 2017.

4. Equity Method of Accounting for Common Stock of OncoCyte, at Fair Value

BioTime elected to account for its 14.7 million shares of OncoCyte common stock at fair value using the equity method of accounting beginning on February 17, 2017, the date of the OncoCyte Deconsolidation. The OncoCyte shares had a fair value of $68.2 million as of December 31, 2017 and a fair value of $71.2 million as of February 17, 2017, based on the $4.65 per share and $4.85 per share closing prices of OncoCyte common stock on the NYSE American on those respective dates. For the year ended December 31, 2017, BioTime recorded an unrealized loss of $2.9 million due to the decrease in the OncoCyte stock price from February 17, 2017 to December 31, 2017.

The condensed results of operations and condensed balance sheet information of OncoCyte are summarized below (in thousands):

	For the Period January 1, 2017 through February 16, 2017 (1)
Condensed Statement of Operations (1):	
Research and development expense	$ 798
General and administrative expense	377
Sales and marketing expense	213
Loss from operations	(1,388)
Net loss	$ (1,392)

(1) OncoCyte's condensed results of operations for the period from January 1, 2017 through February 16, 2017, the date immediately preceding the OncoCyte Deconsolidation, for the year ended December 31, 2017, and for the years ended December 31, 2016 and 2015, shown in the table below, are included in the consolidated results of operations of BioTime for those respective periods, after intercompany eliminations, as applicable.

The following table summarizes OncoCyte results of operations for the full years ended December 31, 2017, 2016 and 2015 (in thousands).

Condensed Statements of Operations	Year Ended December 31, 2017	Year Ended December 31, 2016	Year Ended December 31, 2015
Research and development expense	$ 7,174	$ 5,677	$ 4,527
General and administrative expense	9,232	4,265	3,867
Sales and marketing expense	2,443	1,198	324
Loss from operations	(18,849)	(11,140)	(8,718)
Net loss	$ (19,375)	$ (11,168)	$ (8,735)

	December 31, 2017	December 31, 2016
Condensed Balance Sheet information (2):		
Current assets	$ 8,528	$ 12,696
Noncurrent assets	1,688	1,751
	$ 10,216	$ 14,447
Current liabilities	$ 4,454	$ 4,275
Noncurrent liabilities	1,359	310
Stockholders' equity	4,403	9,862
	$ 10,216	$ 14,447

(2) The condensed balance sheet information of OncoCyte as of December 31, 2017 and 2016, is provided for informational and comparative purposes only. OncoCyte was not included in BioTime's consolidated balance sheet at December 31, 2017.

5. Equity Method of Accounting for Common Stock of Asterias, at Fair Value

BioTime elected to account for its 21.7 million shares of Asterias common stock at fair value using the equity method of accounting beginning on May 13, 2016, the date of the Asterias Deconsolidation. The Asterias shares had a fair value of $48.9 million as of December 31, 2017 and a fair value of $100 million as of December 31, 2016, based on the $2.25 and $4.60 closing prices of Asterias common stock on the NYSE American on those respective dates. For the year ended December 31, 2017, BioTime recorded an unrealized loss of $51.1 million on the Asterias shares due to the decrease in Asterias stock price from December 31, 2016 to December 31, 2017. The Asterias shares had a fair value of $100.0 million as of December 31, 2016 and a fair value of $65.7 million as of May 13, 2016, based on the $4.60 and $3.02 closing prices of Asterias common stock on the NYSE American on those respective dates. For the year ended December 31, 2016, BioTime recorded an unrealized gain of $34.3 million on the Asterias shares due to the increase in Asterias stock price from May 13, 2016 to December 31, 2016.

The condensed results of operations and condensed balance sheet information of Asterias are summarized below (in thousands):

	For the Period January 1, 2016 through May 12, 2016 [1]
Condensed Statement of Operations [1]:	
Total revenue	$ 2,354
Gross profit	2,301
Loss from operations	(13,944)
Net loss	$ (13,113)

(1) Asterias condensed results of operations for the period from January 1, 2016 through May 12, 2016, the date immediately preceding the Asterias Deconsolidation, for the year ended December 31, 2016, and for the year ended December 31, 2015, shown in the table below, are included in the consolidated results of operations of BioTime for the years ended December 31, 2016 and 2015, respectively, after intercompany eliminations, as applicable.

The following table summarizes Asterias results of operations for the full years ended December 31, 2017, 2016 and 2015 (in thousands).

Condensed Statements of Operations	Year Ended December 31, 2017	Year Ended December 31, 2016	Year Ended December 31, 2015
Total revenue	$ 4,042	$ 6,954	$ 3,582
Gross profit	3,877	6,826	3,314
Loss from operations	(33,251)	(34,123)	(21,908)
Net loss	$ (28,372)	$ (35,489)	$ (15,003)

	December 31, 2017	December 31, 2016
Condensed Balance Sheet information [1]:		
Current assets	$ 22,716	$ 36,990
Noncurrent assets	20,376	24,020
	$ 43,092	$ 61,010
Current liabilities	$ 3,521	$ 6,535
Noncurrent liabilities	6,028	12,447
Stockholders' equity	33,543	42,028
	$ 43,092	$ 61,010

(1) The condensed balance sheet information of Asterias as of December 31, 2017 and 2016, is provided for informational and comparative purposes only and was not included in BioTime's consolidated balance sheet as of December 31, 2017 and 2016 due to the Asterias Deconsolidation on May 13, 2016.

6. Property, Plant and Equipment, Net

At December 31, 2017 and 2016, property, plant and equipment were comprised of the following (in thousands):

	December 31,	
	2017 [1]	2016 [2]
Equipment, furniture and fixtures	$ 4,255	$ 4,718
Leasehold improvements	4,434	3,791
Accumulated depreciation and amortization	(3,156)	(2,980)
Property and equipment, net	$ 5,533	$ 5,529

(1) Reflects the effect of the OncoCyte Deconsolidation.

(2) Reflects the effect of the Asterias Deconsolidation

Property, plant and equipment at December 31, 2017 and 2016 includes $151,000 and $626,000 financed by capital leases, respectively. Depreciation and amortization expense amounted to $0.9 million, $1.2 million and $1.1 million for the years ended December 31, 2017, 2016 and 2015, respectively.

Leasehold improvements

Leasehold improvements of approximately $1.6 million was transferred to property, plant and equipment as of June 1, 2016 when BioTime completed construction of leasehold improvements at its Alameda facility (see Note 12). Under the terms of the lease agreement, the landlord provided BioTime with an initial tenant improvement allowance of up to $1.4 million, which BioTime utilized entirely to construct a research and development laboratory, a diagnostic testing laboratory, and a small production facility that can be used to manufacture small cell banks and clinical materials for clinical studies. Additional leasehold improvements of approximately $200,000 paid by BioTime were not reimbursable by the landlord. The tenant improvements are amortized over the shorter of the useful life of the assets or the lease term.

7. Intangible Assets, Net

At December 31, 2017 and 2016, intangible assets, primarily consisting of acquired patents and accumulated amortization were as follows (in thousands):

	December 31,	
	2017 [1]	2016 [2]
Intangible assets	$ 23,294	$ 25,703
Accumulated amortization	(16,394)	(15,497)
Intangible assets, net	$ 6,900	$ 10,206

(1) Reflects the effect of the OncoCyte Deconsolidation.

(2) Reflects the effect of the Asterias Deconsolidation

BioTime amortizes its intangible assets over an estimated period of 10 years on a straight-line basis. BioTime recognized $2.3 million, $3.6 million and $5.3 million in amortization expense of intangible assets during the years ended December 31, 2017, 2016 and 2015, respectively.

Amortization of intangible assets for periods subsequent to December 31, 2017 is as follows (in thousands):

Year Ended December 31,	Amortization Expense
2018	$ 2,338
2019	2,328
2020	1,553
2021	517
2022	164
Total	$ 6,900

8. Accounts Payable and Accrued Liabilities

At December 31, 2017 and 2016, accounts payable and accrued liabilities consist of the following (in thousands):

	December 31,	
	2017 [1]	2016 [2]
Accounts payable	$ 938	$ 1,593
Accrued liabilities	2,368	3,212
Accrued compensation	2,275	1,904
Other current liabilities	137	435
Total	$ 5,718	$ 7,144

(1) Reflects the effect of the OncoCyte Deconsolidation

(2) Reflects the effect of the Asterias Deconsolidation.

9. Related Party Transactions

Related Party Convertible Debt

Cell Cure issued certain convertible promissory notes (the "Convertible Notes") to Cell Cure shareholders other than BioTime. The functional currency of Cell Cure is the Israeli New Shekel however the Convertible Notes are payable in United States dollars. Consequently, at each balance sheet date, Cell Cure remeasures the Convertible Notes issued to BioTime and other Cell Cure shareholders using the current exchange rate at that date pursuant to ASC 830, *Foreign Currency Matters*. These foreign currency remeasurement gains and losses are included in other income and expense, net. The Convertible Notes bear a stated interest rate of 3% per annum. The total outstanding principal balance of the Convertible Notes, with accrued interest, were due and payable on various maturity dates in July 2017 and September 2017, and in February 2019 through August 2019. The outstanding principal balance of the Convertible Notes with accrued interest was convertible into Cell Cure ordinary shares at a fixed conversion price of $20.00 per share, at the election of the holder, at any time prior to maturity. Any conversion of the Convertible Notes was required to be settled with Cell Cure ordinary shares and not with cash. The conversion feature of the Convertible Notes issued was not accounted for as an embedded derivative under the provisions of ASC 815, *Derivatives and Hedging* since it was not a freestanding financial instrument and the underlying Cell Cure ordinary shares are not readily convertible into cash. Accordingly, the Convertible Notes were accounted for under ASC 470-20, *Debt with Conversion and Other Options* (ASC 470-20). Under ASC 470-20, BioTime determined that a beneficial conversion feature ("BCF") was present on the issuance dates of the Convertible Notes. A conversion feature is beneficial if, on the issuance dates, the effective conversion price is less than the fair value of the issuer's capital stock. Since the effective conversion price of $20.00 per share is less than the estimated range of fair values from $28.00 per share to $40.00 per share of Cell Cure ordinary shares on the dates the Convertible Notes were issued, a beneficial conversion feature, equal to the intrinsic value ranging from $8 per share to $20 per share, was present. In accordance with ASC 470-20-30-8, if the intrinsic value of the BCF is greater than the proceeds allocated to the convertible instrument, the amount of the discount assigned to the BCF is limited to the amount of the proceeds allocated to the convertible instrument. The BCF was recorded as an addition to equity with a corresponding debt discount on the Convertible Notes issuance date. This debt discount was amortized to interest expense using the effective interest method over the term of the debt, generally three years, representing an approximate effective annual interest rate between 11% and 23%. As of December 31, 2016, the carrying value of the Convertible Notes was $1,865,000, comprised of principal and accrued interest of $2,544,000, net of unamortized debt discount of $679,000.

On July 10, 2017, BioTime purchased all of the outstanding Cell Cure Convertible Notes and Cell Cure ordinary shares held by Hadasit Bio-Holdings Ltd. ("HBL"), a Cell Cure shareholder that owned 21.2% of the issued and outstanding Cell Cure ordinary shares (see Note 10) and substantially all of the Cell Cure Convertible Notes issued by Cell Cure to shareholders other than BioTime. BioTime issued 1,220,207 common shares valued at $3.8 million to purchase the Cell Cure ordinary shares and 2,776,662 common shares valued at $8.6 million to purchase the Cell Cure Convertible Notes held by HBL. The value of the BioTime common stock issued was determined based on the closing price of BioTime common shares on the NYSE American on July 10, 2017, or $3.09 per share (see Note 10).

The purchase of the Cell Cure Convertible Notes from HBL was accounted for as an extinguishment of a convertible debt with a beneficial conversion feature under ASC 470-50-40, *Debt – Modifications and Extinguishments*. This guidance requires an entity to recognize the difference between the reacquisition price and the net carrying value of the extinguished debt, including any unamortized discount relating to the BCF, as a gain or loss on extinguishment in the statement of operations. The entity must also calculate the intrinsic value, if any, of the conversion option of the debt and charge this amount to equity and allocate the remainder of the reacquisition price to the extinguishment of the debt and record a gain or loss on debt extinguishment by comparing the reacquisition price allocated to the debt with the net carrying value amount of the debt.

In connection with the purchase of all of the outstanding Cell Cure Convertible Notes from HBL and in accordance with ASC 470-50-40, BioTime recorded a charge to equity of $3.1 million representing the intrinsic value of the conversion option of the Cell Cure Convertible Notes, and a $2.8 million noncash loss on debt extinguishment included in other income and expenses, net, during the year ended December 31, 2017.

Shared Facilities and Service Agreements with Affiliates

The receivables from affiliates shown on the condensed consolidated balance sheet as of December 31, 2017 primarily represents amounts owed to BioTime from OncoCyte under a Shared Facilities and Service Agreement (the "Shared Facilities Agreement"). Under the terms of the Shared Facilities Agreement, BioTime allows OncoCyte to use BioTime's premises and equipment located at Alameda, California for the sole purpose of conducting business. BioTime also provides accounting, billing, bookkeeping, payroll, treasury, payment of accounts payable, and other similar administrative services to OncoCyte. BioTime may also provide the services of attorneys, accountants, and other professionals who may also provide professional services to BioTime and its other subsidiaries. BioTime also has provided OncoCyte with the services of laboratory and research personnel, including BioTime employees and contractors, for the performance of research and development work for OncoCyte at the premises.

BioTime charges OncoCyte a "Use Fee" for services provided and usage of BioTime facilities, equipment, and supplies. For each billing period, BioTime prorates and allocates to OncoCyte costs incurred, including costs for services of BioTime employees and use of equipment, insurance, leased space, professional services, software licenses, supplies and utilities. The allocation of costs depends on key cost drivers, including actual documented use, square footage of facilities used, time spent, costs incurred by BioTime for OncoCyte, or upon proportionate usage by BioTime and OncoCyte, as reasonably estimated by BioTime. BioTime, at its discretion, has the right to charge OncoCyte a 5% markup on such allocated costs although BioTime elected not to charge this markup from the inception of the Shared Facilities Agreement through December 31, 2015. For allocated costs incurred on and after January 1, 2016, BioTime is charging the 5% markup. The allocated cost of BioTime employees and contractors who provide services is based upon records maintained of the number of hours of such personnel devoted to the performance of services.

The Use Fee is determined and invoiced to OncoCyte on a quarterly basis for each calendar quarter of each calendar year. If the Shared Facilities Agreement terminates prior to the last day of a billing period, the Use Fee will be determined for the number of days in the billing period elapsed prior to the termination of the Shared Facilities Agreement. Each invoice will be payable in full by OncoCyte within 30 days after receipt. Any invoice, or portion thereof, not paid in full when due will bear interest at the rate of 15% per annum until paid, unless the failure to make a payment is due to any inaction or delay in making a payment by BioTime employees from OncoCyte funds available for such purpose, rather than from the unavailability of sufficient funds legally available for payment or from an act, omission, or delay by any employee or agent of OncoCyte. Through December 31, 2017, BioTime has not charged OncoCyte any interest.

In addition to the Use Fees, OncoCyte will reimburse BioTime for any out of pocket costs incurred by BioTime for the purchase of office supplies, laboratory supplies, and other goods and materials and services for the account or use of OncoCyte, provided that invoices documenting such costs are delivered to OncoCyte with each invoice for the Use Fee. BioTime will have no obligation to purchase or acquire any office supplies or other goods and materials or any services for OncoCyte, and if any such supplies, goods, materials or services are obtained for OncoCyte, BioTime may arrange for the suppliers to invoice OncoCyte directly.

The Shared Facilities Agreement will remain in effect, unless either party gives the other party written notice stating that the Shared Facilities Agreement will terminate on December 31 of that year, or unless the agreement is otherwise terminated under another provision of the agreement.

As of December 31, 2017, BioTime has a $2.1 million receivable from OncoCyte included in receivable from affiliates, net, on account of Use Fees incurred by OncoCyte under the Shared Facilities Agreement. Since these amounts are due and payable within 30 days of being invoiced, the receivable is classified as a current asset. For the period from February 17, 2017 through December 31, 2017, OncoCyte paid approximately $1.6 million in Use Fees to BioTime included as a reduction of general and administrative expenses. The remaining $0.2 million receivable from affiliate is due from Ascendance Biotechnology, Inc. ("Ascendance"), an equity method investee of AgeX and former investee of BioTime (see Note 10), net of allowance for doubtful accounts, for similar shared services performed by BioTime for Ascendance. BioTime has a similar Shared Facilities Agreement with Asterias and, as of December 31, 2017, there was a net payable to Asterias of $33,000. As of December 31, 2016, BioTime had a receivable from Asterias of approximately $0.3 million.

BioTime accounts for receivables from affiliates, net of payables to affiliates, if any, for similar shared services and other transactions BioTime's consolidated subsidiaries may enter into with nonconsolidated affiliates. BioTime and the affiliates record those receivables and payables on a net basis since BioTime and the affiliate have a legal right of offset of the receivable and the payable, intend to offset those receivables and payables, and settle the balances net by having the party that owes the other party pay the net balance owed.

Other related party transactions

In connection with the capitalization of AgeX as discussed in Note 10, Alfred D. Kingsley, the Chairman of BioTime's Board of Directors, purchased 200,000 shares of AgeX common stock. The AgeX shares were sold at the same price of $2.00 per share and on the same terms as shares were sold to other investors in AgeX pursuant to a series of Stock Purchase Agreements of like tenor.

Mr. Kingsley acquired an additional 421,500 AgeX shares valued at $2.00 per share from BioTime in exchange for 300,000 BioTime common shares owned by Mr. Kingsley valued at $2.81 per share. In connection with its exchange of AgeX shares for BioTime shares with Mr. Kingsley, BioTime sold 300,000 BioTime common shares to an unaffiliated and existing BioTime investor also for $2.81 per share (see Note 10). The BioTime common shares acquired from Mr. Kingsley were immediately retired as authorized but unissued shares.

BioTime currently pays $5,050 per month for the use of approximately 900 square feet of office space in New York City, which is made available to BioTime on a month-by-month basis by one of its directors at an amount that approximates his cost.

10. Shareholders' Equity

Preferred Shares

BioTime is authorized to issue 2,000,000 shares of preferred stock. The preferred shares may be issued in one or more series as the board of directors may by resolution determine. The board of directors is authorized to fix the number of shares of any series of preferred shares and to determine or alter the rights, preferences, privileges, and restrictions granted to or imposed on the preferred shares as a class, or upon any wholly unissued series of any preferred shares. The board of directors may, by resolution, increase or decrease (but not below the number of shares of such series then outstanding) the number of shares of any series of preferred shares subsequent to the issue of shares of that series. As of December 31, 2017, no shares of preferred stock were issued or outstanding.

Common Shares

BioTime is authorized to issue 150,000,000 common shares with no par value. As of December 31, 2017, BioTime had 126,865,634 issued and outstanding common shares. As of December 31, 2016, BioTime had 103,396,245 issued and 102,776,539 outstanding common shares. The difference of 619,706 common shares as of December 31, 2016 is attributed to shares held by BioTime subsidiaries which are accounted for as treasury stock on the consolidated balance sheet. On February 17, 2017, and in connection with the OncoCyte Deconsolidation, those treasury shares were considered to be issued and outstanding BioTime common shares. As of December 31, 2017, there are no outstanding shares of treasury stock.

On October 17, 2017, BioTime completed a public offering of 11,057,693 common shares at a price of $2.60 per share, including the underwriters' full exercise of their over-allotment option to purchase additional shares. The public offering generated net proceeds to BioTime of approximately $26.7 million, after deducting underwriting discounts and commissions and other estimated offering expenses payable by BioTime.

On July 10, 2017, BioTime issued 4,924,542 common shares valued at $15.2 million to purchase outstanding Cell Cure Convertible Notes and additional Cell Cure ordinary shares from noncontrolling interests in Cell Cure as further described in Note 9 and *Transactions with Noncontrolling Interests of Cell Cure* section below, respectively.

On April 6, 2017, BioTime, entered into a Controlled Equity Offering^{SM} Sales Agreement (the "Sales Agreement") with Cantor Fitzgerald & Co., as sales agent ("Cantor Fitzgerald"), pursuant to which BioTime may offer and sell, from time to time, through Cantor Fitzgerald, shares of BioTime common stock, no par value per share, having an aggregate offering price of up to $25,000,000. BioTime is not obligated to sell any shares under the Sales Agreement. Subject to the terms and conditions of the Sales Agreement, Cantor Fitzgerald will use commercially reasonable efforts, consistent with its normal trading and sales practices, applicable state and federal law, rules and regulations, and the rules of the NYSE American, to sell the shares from time to time based upon BioTime's instructions, including any price, time or size limits specified by BioTime. Under the Sales Agreement, Cantor Fitzgerald may sell the shares by any method deemed to be an "at-the-market" offering as defined in Rule 415(a)(4) under the Securities Act of 1933, as amended, or by any other method permitted by law, including in privately negotiated transactions. Cantor Fitzgerald's obligations to sell the shares under the Sales Agreement are subject to satisfaction of certain conditions, including the continued effectiveness of BioTime's Registration Statement on Form S-3 which became effective on May 5, 2017. In connection with the capitalization of AgeX on August 17, 2017 discussed below, BioTime acquired 300,000 BioTime common shares from Alfred D. Kingsley in exchange for 421,500 shares of AgeX common stock owned by BioTime, as discussed in Note 9, and BioTime sold 300,000 common shares under the Sales Agreement to an unaffiliated and existing BioTime investor for $2.81 per share. The BioTime common shares received from Mr. Kingsley were immediately retired as authorized but unissued shares (see Note 9). Although the transaction between Mr. Kingsley and BioTime was an exchange of shares, the proceeds from the sale of BioTime shares to the unrelated investor and the BioTime shares acquired from Mr. Kingsley are presented gross as separate cash items on the Consolidated Statements of Cash Flows for the year ended December 31, 2017, in accordance with ASC 230-10-45, *Statement of Cash Flows – Other Presentation Matters*.

BioTime will pay Cantor Fitzgerald a commission of 3.0% of the aggregate gross proceeds from each sale of shares, reimburse legal fees and disbursements and provide Cantor Fitzgerald with customary indemnification and contribution rights. The Sales Agreement may be terminated by Cantor Fitzgerald or BioTime at any time upon notice to the other party, or by Cantor Fitzgerald at any time in certain circumstances, including the occurrence of a material and adverse change in BioTime's business or financial condition that makes it impractical or inadvisable to market the shares or to enforce contracts for the sale of the shares.

On February 15, 2017, BioTime sold 7,453,704 common shares in an underwritten public offering. The offering price to the public was $2.70 per share and net proceeds to BioTime were approximately $18.5 million, after deducting underwriting discounts, commissions and expenses related to the financing.

On June 16, 2016, BioTime sold 7,322,176 common shares in an underwritten public offering at a public offering price of $2.39 per share, for net proceeds of $16.4 million, after deducting underwriting discounts and commissions and other expenses. On July 5, 2016, BioTime issued an additional 1,098,326 common shares upon the full exercise of the over-allotment option by the underwriters for net proceeds of $2.2 million, after deducting underwriting discounts.

Significant common share transactions during the year ended December 31, 2015 are as follows:

- In September 2015, BioTime raised $8.6 million through the sale of 2,607,401 common shares at an offering price of $3.29 to three of its shareholders.

- During October 2015, BioTime sold 6,530,612 common shares for $20.4 million in the aggregate to certain investment funds in Israel that hold shares of companies that are included within certain stock indexes of the TASE. The $3.13 purchase price per share was determined with reference to the closing price of BioTime common shares on the TASE on the date of sale. In addition, OncoCyte sold 246,356 BioTime common shares at the same price to one of the Israeli investment funds.

- In October 2015, BioTime sold 1,600,000 common shares to a shareholder for $5.1 million. The $3.19 price of price per share was the closing price of the common shares on the NYSE American on October 1, 2015, the last trading day before BioTime and the shareholder entered into a purchase agreement for the sale of the shares.

- On December 31, 2015, BioTime distributed 4.7 million shares of OncoCyte common stock to its shareholders, on a pro rata basis, accounted for as a dividend in kind. On this date, BioTime shareholders received one share of OncoCyte common stock for every twenty shares of BioTime common stock held. As a result of this distribution, BioTime recorded a reduction in the carrying value of its investment in OncoCyte with a corresponding increase to noncontrolling interests in OncoCyte in the amount of $712,000, representing the reduction in BioTime's ownership in OncoCyte by 18.7% from 76.5% to 57.8%. BioTime continues to hold a controlling financial interest in OncoCyte. This distribution generated a taxable gain of approximately $7.4 million to BioTime, however BioTime had sufficient current year losses to offset the entire gain.

BioTime Warrants

BioTime has issued equity-classified warrants to purchase its common shares. Activity related to warrants in 2017, 2016, and 2015 is presented in the table below (in thousands, except price per share):

	Number of Warrant Shares	Per Share Exercise Price	Weighted Average Exercise Price
Outstanding, January 1, 2015	9,195	$ 5.00	$ 5.00
Exercised in 2015	(4)	5.00	5.00
Warrant adjustment (1)	919		
Outstanding, December 31, 2015	10,110	$ 4.55	$ 4.55
Expired in 2016	(715)	4.55	4.55
Outstanding, December 31, 2016	9,395	$ 4.55	$ 4.55
Expired in 2017	-		
Outstanding, December 31, 2017 (2)	9,395	$ 4.55	$ 4.55

(1) The number of shares issuable upon the exercise of the warrants was adjusted as a result of the distribution of OncoCyte common stock to BioTime shareholders during December 2015.

(2) The 9,394,862 outstanding warrants will expire, if unexercised, beginning June 5, 2018 through September 30, 2018.

Transactions with Noncontrolling Interests of Asterias and OncoCyte

BioTime accounts for a change in ownership interests in its subsidiaries that does not result in a change of control of the subsidiary by BioTime under the provisions of ASC 810-10-45-23, which prescribes the accounting for changes in ownership interest that do not result in a change in control of the subsidiary, as defined by GAAP, before and after the transaction. Under this guidance, changes in a controlling shareholder's ownership interest that do not result in a change of control, as defined by GAAP, in the subsidiary are accounted for as equity transactions. Thus, if the controlling shareholder, through a purchase or sale or otherwise, increases or decreases its ownership interest in the subsidiary and retains control, no gain or loss is recognized in the statement of operations of the controlling shareholder. Similarly, the controlling shareholder will not record any additional acquisition adjustments to reflect its subsequent purchases of additional shares in the subsidiary if there is no change of control. Only a proportional and immediate transfer of carrying value between the controlling and the noncontrolling shareholders occurs based on the respective ownership percentages.

The subsidiary financing transactions with noncontrolling interests in Asterias for $18.3 million, and OncoCyte for $4.0 million, reported in the consolidated statements of shareholders' equity for the year ended December 31, 2016, represent this proportional transfer of carrying value to BioTime pertaining to investments in Asterias and OncoCyte common stock made by noncontrolling shareholders in which BioTime's ownership was reduced, but not below 50%.

Transactions with Noncontrolling Interests of Cell Cure

On July 10, 2017, BioTime purchased all of the outstanding Cell Cure Convertible Notes and Cell Cure ordinary shares held by HBL, a former Cell Cure shareholder that owned 21.2% of the issued and outstanding Cell Cure ordinary shares and substantially all of the Cell Cure Convertible Notes issued by Cell Cure shareholders other than BioTime (see Note 9). On the same date, BioTime also purchased all of the Cell Cure ordinary shares owned by Teva Pharmaceutical Industries, Ltd. ("Teva"), a former Cell Cure shareholder that owned 16.1% of the issued and outstanding Cell Cure ordinary shares. BioTime issued 2,147,880 common shares valued at $6.6 million based on the closing price of BioTime common shares on the NYSE American to acquire the Cell Cure ordinary shares from HBL and Teva. Prior to the consummation of the transactions with HBL and Teva, BioTime held 62.5% of the issued and outstanding Cell Cure ordinary shares and upon the consummation of the transactions BioTime held 99.8%. Accordingly, BioTime recorded a corresponding charge to equity of $10.1 million and a proportional transfer of carrying value of $3.5 million for purchase of noncontrolling interests in Cell Cure, included in the consolidated statement of shareholders' equity for the year ended December 31, 2017, in accordance with ASC 810-10-45-23.

On July 10, 2017, as an inducement to HBL to sell their Cell Cure ordinary shares to BioTime, Cell Cure issued 24,566 warrants to HBL (the "HBL Warrants") to purchase Cell Cure ordinary shares at an exercise price of $40.5359 per warrant share, payable in U.S. dollars, the same Cell Cure price per ordinary share paid by BioTime to each of HBL and Teva for the purchase of their Cell Cure ordinary shares as discussed above. No warrants were issued to Teva. The HBL Warrants are immediately exercisable and expire on the earliest of the lapse of 5 years from the issuance date or immediately prior to the closing of a Corporate Transaction or an initial public offering, as defined in the HBL Warrant Agreements. Since the exercise price is U.S. dollar-denominated and settlement is not expected to occur in the next twelve months, Cell Cure classified the HBL Warrant as a long-term liability in accordance with ASC 815, *Derivatives and Hedging*. ASC 815 requires freestanding financial instruments, such as warrants, with exercise prices denominated in currencies other than the functional currency of the issuer to be accounted for as liabilities at fair value, with all subsequent changes in fair value after the issuance date to be recorded in the statements of operations.

The fair value of the HBL Warrants at the time of issuance was determined by using the Black-Scholes-Merton option pricing model using the contractual term of the warrants. In applying this model, the fair value is determined by applying Level 3 inputs, as defined by ASC 820; these inputs are based on certain key assumptions including the fair value of the Cell Cure ordinary shares and the expected stock price volatility over the term of the warrants. The fair value of the Cell Cure ordinary shares is determined by Cell Cure's Board of Directors, which, among other methods, may include engaging valuation specialists to estimate the fair value or use recent transactions, if any or as applicable, as a reasonable approximation of fair value. BioTime determines the stock price volatility using historical prices of comparable public company common stock for a period equal to the remaining term of the warrants. The HBL Warrants are revalued each reporting period using the same methodology described above. Changes in any of the key assumptions used to value the HBL Warrants could materially impact the fair value of the warrants and BioTime's consolidated financial statements.

For the year ended December 31, 2017, Cell Cure recorded a noncash expense of $555,000 included in general and administrative expenses. As of December 31, 2017, the HBL Warrants, valued at $535,000 were included in other long-term liabilities on the consolidated balance sheet.

See Note 9 for the accounting of the purchase of the Cell Cure Convertible Notes from HBL.

On October 4, 2017, a Cell Cure option holder exercised Cell Cure stock options to purchase 4,400 Cell Cure ordinary shares, reducing BioTime’s ownership from 99.8% to 98.8% of total issued and outstanding Cell Cure ordinary shares.

Transactions with Noncontrolling Interests of AgeX Therapeutics, Inc.

AgeX was incorporated in January 2017 for the purpose of acquiring and developing BioTime technology relating to cell immortality and regenerative biology by developing products for the treatment of aging and age-related diseases. Initial product development plans include: pluripotent stem cell-derived brown adipocytes (AGEX-BAT1); vascular progenitors (AGEX-VASC1); and induced Tissue Regeneration (iTR). Initial planned indications for these products are type II diabetes, cardiac ischemia, and cancer, respectively.

On August 17, 2017, AgeX received its initial assets and cash from BioTime and certain investors. BioTime contributed certain assets and cash to AgeX in exchange for 28,800,000 shares of AgeX common stock pursuant to an Asset Contribution and Separation Agreement (the “Asset Contribution Agreement”). BioTime and AgeX also entered into a License Agreement pursuant to which BioTime licensed or sublicensed to AgeX, and AgeX granted to BioTime an option to license back, certain patent rights. Concurrently with the acquisition of assets from BioTime under the Asset Contribution Agreement, AgeX sold 4,950,000 shares of its common stock for $10.0 million in cash primarily to investors, which included the Chairman of BioTime’s Board of Directors (see Note 9). At the close of the financing, BioTime owned 85.4% of the issued and outstanding shares of AgeX common stock.

The AgeX shares were offered and sold without registration under the Securities Act of 1933, as amended (the “Securities Act”) in reliance on exemptions from registration under Section 4(a)(2) of the Securities Act and Rule 506 of Regulation D and Regulation S thereunder. AgeX has agreed to use commercially reasonable efforts to register the shares of AgeX common stock issued to the AgeX investors for sale under the Securities Act.

Asset Contribution Agreement

Assets Contributed:

Pursuant to the Asset Contribution Agreement, BioTime contributed to AgeX the following assets:

- Intellectual property and proprietary technology, including certain patents and patent applications and know-how that comprised BioTime’s “iTR” and adipose brown fat tissue technology;
- Approximately 95% of the outstanding shares of ReCyte Therapeutics common stock, which constituted all of the shares BioTime held prior to the contribution;
- Approximately 82% of the outstanding shares of LifeMap Sciences common stock, which constituted all of the shares BioTime held prior to the contribution;
- Approximately 44% of the outstanding shares of Ascendance Biotechnology, Inc., (“Ascendance”) which constituted all of the shares BioTime held prior to the contribution.
- $100,000 in cash; and
- Certain other assets and contracts related to the AgeX research and development programs.

Assumption of Liabilities:

AgeX agreed to assume all third-party obligations and liabilities related to the assets contributed and contracts assigned to AgeX or the operation of the AgeX related business.

Other Matters:

The Asset Contribution Agreement also sets forth other terms that govern certain aspects of BioTime's ongoing relationship with AgeX if in the future BioTime determines to distribute its AgeX shares to BioTime shareholders.

License Agreement

Concurrently with the contribution of assets to AgeX under the Asset Contribution Agreement, BioTime and AgeX entered into a License Agreement pursuant to which BioTime has licensed to AgeX, with rights to sublicense, certain intellectual property, including patents and patent applications and know-how for use in the development, manufacture and commercialization of products or services for the prevention, treatment, amelioration, diagnosis or monitoring of all human and non-human animal diseases and conditions except for the field of medical products, devices and services for the reserved BioTime fields of orthopedic, ophthalmic and medical aesthetic uses. In addition, BioTime retained an option right to license, on terms to be negotiated, iTR patents in research, development, manufacturing and commercialization of treatments in the reserved BioTime fields. The licensed patents and know-how relate generally to (a) BioTime's *PureStem*® human embryonic progenitor cell lines, and (b) telomere length and DNA quality control analysis in pluripotent stem cells.

The BioTime patent rights licensed to AgeX are exclusive and worldwide except for existing third-party licenses, and for medical products, devices, and services related to tendon. AgeX additionally received an option to license certain BioTime retained patent rights outside of orthopedic indications unless a license grant would compete with a BioTime program or products in the retained BioTime field.

The Asset Contribution Agreement transactions were completed between entities under common control and the assets contributed by BioTime to AgeX were transferred at historical carrying values with no gain or loss recognized in accordance with ASC 810-10-45-23. As a result, pursuant to the new cash investment made by the outside noncontrolling interests in AgeX, this transaction resulted in a $8.2 million proportional equity transfer, at carrying value, from noncontrolling interests in AgeX to BioTime recorded in consolidated shareholders' equity for the year ended December 31, 2017.

Transactions with Noncontrolling Interests of Other Subsidiaries

On June 6, 2017, BioTime increased its ownership in LifeMap Sciences from 78% to 82% and obtained a direct 100% ownership interest in LifeMap Solutions, of which 78% was previously indirectly owned by BioTime through LifeMap Sciences, for settlement and cancellation of certain intercompany debt owed by LifeMap Sciences. In 2017, certain OrthoCyte option holders exercised OrthoCyte stock options to purchase 51,000 shares of OrthoCyte common stock reducing BioTime's ownership from 100% to 99.8% of total issued and outstanding shares of OrthoCyte common stock. On August 17, 2017, pursuant to the Asset Contribution Agreement between BioTime and AgeX discussed above, BioTime contributed its direct ownership in ReCyte Therapeutics and LifeMap Sciences to AgeX, and after the contribution BioTime owns these subsidiaries indirectly through its 85.4% direct ownership of AgeX. All of these transactions were between entities under common control and the changes in ownership interests did not result in a change of control under GAAP. Accordingly, BioTime recorded a $5.5 million net proportional equity transfer, at carrying values, from noncontrolling interests in these subsidiaries to BioTime included in consolidated shareholders' equity for the year ended December 31, 2017, in accordance with ASC 810-10-45-23.

11. Stock Option Plans

During 2002, BioTime adopted the 2002 Employee Stock Option Plan (the "2002 Plan"), which was amended in 2004, 2007, and 2009 to reserve additional common shares for issuance under options or restricted stock awards granted to eligible persons. The 2002 Plan expired during September 2012 and no additional grants of options or awards of restricted stock may be made under the 2002 Plan.

During December 2012, BioTime's Board of Directors approved the 2012 Equity Incentive Plan (the "2012 Plan"), which was amended during 2017, under which BioTime has reserved 16,000,000 common shares for the grant of stock options or the sale of restricted stock or other equity awards. No options may be granted under the 2012 Plan more than ten years after the date upon which the 2012 Plan was adopted by the Board of Directors, and no options granted under the 2012 Plan may be exercised after the expiration of ten years from the date of grant. Under the 2012 Plan, options to purchase common shares may be granted to employees, directors and certain consultants at prices not less than the fair market value at date of grant, subject to certain limited exceptions for options granted in substitution of other options. Options may be fully exercisable immediately, or may be exercisable according to a schedule or conditions specified by the Board of Directors or the Compensation Committee of the Board of Directors. The 2012 Plan also permits BioTime to award restricted stock for services rendered or to sell common shares to employees subject to vesting provisions under restricted stock agreements that provide for forfeiture of unvested shares upon the occurrence of specified events under a restricted stock award agreement. BioTime may permit employees or consultants, but not officers or directors, who purchase stock under restricted stock purchase agreements, to pay for their shares by delivering a promissory note that is secured by a pledge of their shares.

BioTime may also grant stock appreciation rights ("SARs") and hypothetical units issued with reference to BioTime common shares ("Restricted Stock Units") under the Plan. An SAR is the right to receive, upon exercise, an amount payable in cash or shares or a combination of cash and shares, as determined by the Board of Directors or the Compensation Committee, equal to the number of shares subject to the SAR that is being exercised multiplied by the excess of (a) the fair market value of a BioTime common share on the date the SAR is exercised, over (b) the exercise price specified in the SAR Award agreement.

The terms and conditions of a grant of Restricted Stock Units will be determined by the Board of Directors or Compensation Committee. No shares of stock will be issued at the time a Restricted Stock Unit is granted, and BioTime will not be required to set aside a fund for the payment of any such award. A recipient of Restricted Stock Units will have no voting rights with respect to the Restricted Stock Units. Upon the expiration of the restrictions applicable to a Restricted Stock Unit, BioTime will either issue to the recipient, without charge, one common share per Restricted Stock Unit or cash in an amount equal to the fair market value of one common share.

The following table summarizes consolidated stock-based compensation expense, including equity awards by privately-held consolidated subsidiaries, related to stock options and other equity awards for the years ended December 31, 2017, 2016, and 2015, which was allocated as follows (in thousands):

	Year Ended December 31,		
	2017	**2016**	**2015**
Research and development	$ 932	$ 2,608	$ 3,267
General and administrative	3,000	5,343	7,783
Total stock-based compensation expense	$ 3,932	$ 7,951	$ 11,050

As of December 31, 2017, total unrecognized compensation costs related to unvested stock options under BioTime's 2002 Plan and 2012 Plan was $3.7 million, which is expected to be recognized as expense over a weighted average period of approximately 2.44 years.

The weighted-average estimated fair value of stock options granted under BioTime's 2002 Plan and 2012 Plan during the years ended December 31, 2017, 2016 and 2015 was $1.65, $1.69 and $2.13 per share respectively, using the Black-Scholes-Merton option pricing model with the following weighted-average assumptions:

	Year Ended December 31,		
	2017	**2016**	**2015**
Expected life (in years)	5.55	5.83	5.62
Risk-free interest rates	1.83%	1.45%	1.70%
Volatility	58.76%	61.24%	65.82%
Dividend yield	-%	-%	-%

General Option Information

A summary of all equity award activity under BioTime's 2002 Plan and 2012 Plan for the years ended December 31, 2017, 2016 and 2015 is as follows (in thousands except weighted average exercise price):

	Shares Available for Grant	Number of Options Outstanding	Number of RSUs Outstanding	Weighted Average Exercise Price
January 1, 2015	668	3,974	-	$ 4.04
Increase in option pool	6,000	-		-
Granted under 2012 Plan	(1,650)	1,650	-	3.72
Exercised	-	(156)	-	4.00
Forfeited/cancelled/expired under 2002 Plan	-	(35)	-	6.72
Forfeited/cancelled/expired under 2012 Plan	239	(239)	-	3.82
December 31, 2015	5,257	5,194	-	$ 3.93
Granted under 2012 Plan	(2,315)	2,315	-	3.03
RSUs	(200)	-	100	-
Common stock issued to consultant in lieu of cash	(28)	-	-	-
Common stock issued to employee for bonuses in lieu of cash	(135)	-	-	-
Forfeited/cancelled/expired under 2002 Plan	-	(236)	-	5.17
Forfeited/cancelled/expired under 2012 Plan	315	(315)	-	3.77
December 31, 2016	2,894	6,958	100	$ 3.60
Increase to option pool	6,000	-		
Temporary restriction by Board on available pool (1)	(5,000)	-		
Granted under 2012 Plan	(1,954)	1,954		3.04
Exercised	-	(9)		2.66
Forfeited/cancelled/expired under 2012 Plan	545	(860)		4.43
RSU vesting	-	-	(38)	
December 31, 2017	2,485	8,043	62	$ 3.38

(1) On October 13, 2017, BioTime's Board of Directors determined to temporarily set a limit on shares available for grants of share-based awards pursuant to the 2012 Plan. While that limit remains in place, BioTime will not grant share-based awards for more than a total of approximately 2.5 million of the common shares remaining available for awards under the 2012 Plan.

During the year ended December 31, 2016, BioTime issued 81,603 immediately vested common shares in lieu of cash under the 2012 Plan. Those shares are not RSUs but are included in the reduction of approximately 163,000 aggregate shares from the total pool of shares available for grant in the table above. Common shares issued and RSUs granted from the 2012 Plan reduce the shares available for grant by two shares for each common share issued or RSU granted. No such grants were made in 2017.

Additional information regarding options outstanding under BioTime's 2002 Plan and 2012 Plan as of December 31, 2017 is as follows (in thousands except exercise prices and weighted average exercise price):

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Number Outstanding	Weighted Average Remaining Contractual Life (years)	Weighted Average Exercise Price	Number Exercisable	Weighted Average Exercise Price
$2.52 - $3.96	6,883	7.23	$ 3.24	3,190	$ 3.35
$4.02 - $4.95	1,150	3.17	$ 4.22	1,048	$ 4.22
$5.02 - $8.58	10	0.20	$ 32.62	10	$ 7.47
$2.52 - $8.58	8,043	6.64	$ 3.38	4,248	$ 3.57

12. Commitments and Contingencies

Alameda Lease

On December 10, 2015, BioTime entered into a lease for approximately 30,795 square feet of rentable space in two buildings located in an office park in Alameda, California (the "Alameda Lease"). The term of the Alameda Lease is seven years and BioTime has an option to renew the term for an additional five years. BioTime moved into the facility and the term of the Alameda Lease commenced effective February 1, 2016.

The landlord provided BioTime with an initial tenant improvement allowance of $1.4 million that was applied to the construction of improvements of the leased premises, primarily for the research and development facilities. BioTime utilized the tenant improvement allowance to complete the leasehold improvements as of June 1, 2016 (see Note 6). The lease liability payments are included in the base rent payments to the landlord and the $1.2 million due to the landlord as of December 31, 2017, will be amortized using the effective interest method over the lease term.

Base rent under the Alameda Lease commenced on February 1, 2016 at $64,670 per month, and will increase by approximately 3% annually on every February 1 thereafter during the lease term. The lease payments allocated to the landlord liability are amortized as debt service on that liability over the lease term.

In addition to base rent, BioTime will pay a pro rata portion of increases in certain expenses, including real property taxes, utilities (to the extent not separately metered to the leased space) and the landlord's operating expenses, over the amounts of those expenses incurred by the landlord during 2017. As security for the performance of its obligations under the Alameda Lease, BioTime provided the landlord with an initial security deposit of approximately $847,000, which will be reduced by $423,000 after the first twenty-four months of the lease term, and further reduced by an additional $346,000 after the first thirty-six months of the lease term, by applying those amounts to future rent payment obligations under the lease, if BioTime is not in default under the Lease. On February 1, 2018, the landlord reduced the security deposit by $423,000 pursuant to the lease agreement.

New York Leased Office Space

BioTime also currently pays $5,050 per month for the use of office space in New York City, which is made available to BioTime by one of its directors at his cost for use in conducting meetings and other business affairs.

Cell Cure Lease

Cell Cure has leased 1,128 square meters (approximately 12,142 square feet) of office and laboratory space in Jerusalem, Israel under a lease that expires between May 30, 2019 and December 31, 2020, with two additional options to extend the lease for 5 years each. Base monthly rent is NIS 63,402 (approximately US $18,247 per month using the December 31, 2017 exchange rate). In addition to base rent, Cell Cure pays a pro rata share of real property taxes and certain costs related to the operation and maintenance of the building in which the leased premises are located. As further disclosed in Note 17, on January 28, 2018, Cell Cure entered into another lease agreement with its current landlord.

Annual Rent Expense and Future Minimum Lease Payments

Rent expense totaled $1.1 million, $1.5 million, and $2.1 million for the years ended December 31, 2017, 2016, and 2015, respectively, included in the consolidated statements of operations.

Future minimum annual lease payments under the various operating leases, including the Alameda Lease and the landlord lease liability, Cell Cure lease noted above, and capital leases, for the years ending after December 31, 2017 are as follows (in thousands):

Year Ending December 31,	Minimum Operating Lease Payments	Capital Lease Payments
2018	$ 1,266	$ 31
2019	1,100	37
2020	1,030	37
2021	918	37
2022	946	37
Thereafter	86	16
Total minimum lease payments	$ 5,346	$ 195
Less amounts representing interest		(44)
Present value of net minimum lease payments		$ 151

Litigation – General

BioTime will be subject to various claims and contingencies in the ordinary course of its business, including those related to litigation, business transactions, employee-related matters, and others. When BioTime is aware of a claim or potential claim, it assesses the likelihood of any loss or exposure. If it is probable that a loss will result and the amount of the loss can be reasonably estimated, BioTime will record a liability for the loss. If the loss is not probable or the amount of the loss cannot be reasonably estimated, BioTime discloses the claim if the likelihood of a potential loss is reasonably possible and the amount involved could be material. BioTime is not aware of any claims likely to have a material adverse effect on its financial condition or results of operations.

Employment Contracts

BioTime has entered into employment agreements with certain executive officers. Under the provisions of the agreements, BioTime may be required to incur severance obligations for matters relating to changes in control, as defined in the agreements, and involuntary terminations.

Indemnification

In the normal course of business, BioTime may provide indemnifications of varying scope under BioTime's agreements with other companies or consultants, typically BioTime's clinical research organizations, investigators, clinical sites, suppliers and others. Pursuant to these agreements, BioTime will generally agree to indemnify, hold harmless, and reimburse the indemnified parties for losses and expenses suffered or incurred by the indemnified parties arising from claims of third parties in connection with the use or testing of BioTime's products and services. Indemnification provisions could also cover third party infringement claims with respect to patent rights, copyrights, or other intellectual property pertaining to BioTime products and services. The term of these indemnification agreements will generally continue in effect after the termination or expiration of the particular research, development, services, or license agreement to which they relate. The potential future payments BioTime could be required to make under these indemnification agreements will generally not be subject to any specified maximum amount. Historically, BioTime has not been subject to any claims or demands for indemnification. BioTime also maintains various liability insurance policies that limit BioTime's financial exposure. As a result, BioTime believes the fair value of these indemnification agreements is minimal. Accordingly, BioTime has not recorded any liabilities for these agreements as of December 31, 2017 and 2016.

Second Amended and Restated License Agreement

On June 15, 2017, Cell Cure entered into a Second Amended and Restated License Agreement (the "License Agreement") with Hadasit Medical Research Services and Development Ltd. ("Hadasit"), the commercial arm and a wholly-owned subsidiary of Hadassah Medical Organization. Pursuant to the License Agreement, Hadasit granted Cell Cure an exclusive, worldwide, royalty bearing license (with the right to grant sublicenses) in its intellectual property portfolio of materials and technology related to human stem cell derived photoreceptor cells and retinal pigment epithelial cells (the "Licensed IP"), to use, commercialize and exploit any part thereof, in any manner whatsoever in the fields of the development and exploitation of (i) human stem cell derived photoreceptor cells, solely for use in cell therapy for the diagnosis, amelioration, prevention and treatment of eye disorders, and (ii) human stem cell derived retinal pigment epithelial cells, solely for use in cell therapy for the diagnosis, amelioration, prevention and treatment of eye disorders.

As consideration for the Licensed IP, Cell Cure will pay a small one-time lump sum payment, a royalty in the mid single digits of net sales from sales of Licensed IP by any invoicing entity, and a royalty of between 15 and 25 percent of sublicensing receipts. In addition, Cell Cure will pay Hadasit an annual minimal non-refundable royalty, which will become due and payable the first January 1 following the completion of services to Cell Cure by a research laboratory.

Cell Cure agreed to pay Hadasit non-refundable milestone payments upon the recruitment of the first patient for the first Phase IIB clinical trial, upon the enrollment of the first patient in the first Phase III clinical trials, upon delivery of the report for the first Phase III clinical trials, upon the receipt of an NDA or marketing approval in the European Union, whichever is the first to occur, and upon the first commercial sale in the United States or European Union, whichever is the first to occur. Such milestones, in the aggregate, may be up to $3.5 million. As of December 31, 2017, Cell Cure had not accrued any milestone payments under the License Agreement.

The License Agreement terminates upon the expiration of Cell Cure's obligation to pay royalties for all licensed products, unless earlier terminated. In addition, the License Agreement may be terminated by (i) Hadasit if, among other reasons, Cell Cure fails to continue the clinical development of the Licensed IP or fails to take actions to commercialize or sell the Licensed IP over any consecutive 12 month period, and (ii) by either party for (a) a material breach which remains uncured following a cure period, or (b) the granting of a winding-up order in respect of the other party, or upon an order being granted against the other party for the appointment of a receiver or a liquidator in respect of a substantial portion of such other party's assets. The License Agreement also contains mutual confidentiality obligations of Cell Cure and Hadasit, and indemnification obligations of Cell Cure.

Royalty obligations and license fees

BioTime and its subsidiaries or affiliates are parties to certain licensing agreements with research institutions, universities and other parties for the rights to use those licenses and other intellectual property in conducting research and development activities. These licensing agreements provide for the payment of royalties by BioTime or the applicable party to the agreement on future product sales, if any. In addition, in order to maintain these licenses and other rights during the product development, BioTime or the applicable party to the contract must comply with various conditions including the payment of patent related costs and annual minimum maintenance fees. Annual minimum maintenance fees are approximately $135,000 to $150,000 per year. The research and development risk for these products is significant. License fees and related expenses under these agreements were $221,000, $180,000 and $282,000 for the years ended December 31, 2017, 2016 and 2015, respectively.

Grants

BioTime accounts for grants received to perform research and development services in accordance with ASC 730-20, *Research and Development Arrangements*, which requires an assessment at the inception of the grant whether the grant is a liability or a contract to perform research and development services for others. If the company receiving the grant is obligated to repay the grant funds to the grantor regardless of the outcome of the research and development activities, then the company is required to estimate and recognize that liability. Alternatively, if the company receiving the grant is required to repay the grant funds only if the research and development activities are successful, then the grant agreement is accounted for as a contract to perform research and development services for others. In this case, the grant payments are recognized as income when the related research and development expense is incurred.

Under the terms of the grant agreement between Cell Cure and Israel Innovation Authority ("IIA") (formerly the Office of the Chief Scientist of Israel) of the Ministry of Economy and Industry, for the development of *OpRegen*®, Cell Cure will be required to pay royalties on future product sales, if any, up to the amounts received from the IIA, plus interest indexed to LIBOR. Cell Cure's research and product development activities under the grant are subject to substantial risks and uncertainties, and performed on a best efforts basis. As a result, Cell Cure is not required to make any payments under the grant agreement unless it successfully commercializes *OpRegen*®. Accordingly, pursuant to ASC 730-20, the Cell Cure grant is considered a contract to perform research and development services for others and grant revenue is recognized as the related research and development expenses are incurred.

Israeli law pertaining to such government grants contain various conditions, including substantial penalties and restrictions on the transfer of intellectual property, or the manufacture, or both, of products developed under the grant outside of Israel, as defined by the IIA.

13. Income Taxes

U.S. Federal Income Tax Reform

On December 22, 2017, in response to the enactment of the 2017 Tax Act (see Note 2), the SEC staff issued SAB 118 that allows BioTime to record provisional amounts during a measurement period not to extend beyond one year of the enactment date. BioTime is currently analyzing the 2017 Tax Act, and in certain areas, has made reasonable estimates of the effects on its consolidated financial statements and tax disclosures, including the amount of the repatriation tax and changes to BioTime's existing deferred tax balances, for the year ended December 31, 2017. The repatriation tax is based primarily on LifeMap Sciences Ltd, an Israeli subsidiary of LifeMap Sciences, accumulated foreign earnings and profits that BioTime previously excluded from U.S. income taxes. As a result, LifeMap Sciences included $227,000 in foreign earnings in federal income for the current year. The federal taxable income was offset by the LifeMap Sciences' net operating loss carryforwards resulting in no federal income tax due.

In addition, BioTime remeasured certain deferred tax assets and liabilities based on the enacted tax rate at which they are expected to reverse in the future. The estimated tax effected amount related to the remeasurement of these balances was a reduction of BioTime's net deferred tax assets by $8.9 million with a corresponding decrease in the valuation allowance by the same amount, recognized as of December 31, 2017, as discussed below. BioTime considers the key estimates on the repatriation tax, net deferred tax remeasurement and the impact on unrealized tax benefits, if any, to be incomplete due to its continuing analysis of final year-end data and tax positions. BioTime's completion of this analysis could affect the measurement of these balances and give rise to new deferred tax assets and liabilities. Since the 2017 Tax Act was passed late in the fourth quarter of 2017, and further guidance and accounting interpretation is expected over the next twelve months, BioTime's review is not complete and management expects to complete its analysis within the measurement period provided by SAB 118.

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. As of December 31, 2017, the federal portion of the deferred tax assets and liabilities for 2017 were re-rated from 34 percent to 21 percent pursuant to the 2017 Tax Act.

The primary components of the deferred tax assets and liabilities at December 31, 2017 and 2016 were as follows (in thousands):

Deferred tax assets/(liabilities):	2017	2016
Net operating loss carryforwards	$ 55,608	$ 78,116
Research and development and other credits	6,548	7,645
Patents and licenses	910	(67)
Equity method investments at fair value	(23,946)	(40,258)
Stock options	713	1,529
Other, net	812	2,248
Total	40,645	49,213
Valuation allowance	(40,645)	(49,213)
Net deferred tax assets	$ -	$ -

Income taxes differed from the amounts computed by applying the current U.S. federal income tax rate of 34% to pretax losses from operations as a result of the following:

	Year Ended December 31,		
	2017	2016	2015
Computed tax benefit at federal statutory rate	34%	34%	34%
Research and development and other credits	2%	(3%)	2%
Re-rate of federal net deferred tax assets	(38%)	-	-
Permanent differences	(8%)	2%	(4%)
Change in valuation allowance	(32%)	(63%)	(34%)
Establish deferred tax liability for OncoCyte shares at deconsolidation	17%	-	-
State tax benefit, net of effect on federal income taxes	27%	24%	10%
Foreign rate differential	(2%)	6%	(1%)
	-%	-%	7%

As of December 31, 2017, BioTime has gross net operating loss carryforwards of approximately $162.6 million for federal purposes. Of this amount, $17.6 million is attributable to LifeMap Sciences, which includes LifeMap Solutions, as LifeMap Sciences files a separate federal income tax return and their respective net operating loss carryforwards may not be used to offset the taxable income of BioTime. As of December 31, 2017, BioTime's subsidiaries have foreign gross net operating loss carryforwards of approximately $65.2 million which carryforward indefinitely.

As of December 31, 2017, BioTime has net operating losses of $95.0 million for state tax purposes. Historically, both LifeMap Sciences and OncoCyte have been included in the combined California tax return with BioTime. As a result of the OncoCyte Deconsolidation on February 17, 2017, (see Notes 3 and 4), OncoCyte will file a separate California return for tax year 2017. Accordingly, the California net operating loss carryforwards attributable to OncoCyte will not be available to BioTime or LifeMap Sciences. The federal and state net operating losses expire in varying amounts between 2018 and 2036.

As of December 31, 2017, BioTime has research tax credit carryforwards for federal and state tax purposes of $3.3 million and $3.3 million, respectively. The federal tax credits expire between 2018 and 2036, while the state tax credits have no expiration date.

Although the OncoCyte Deconsolidation on February 17, 2017 was not a taxable transaction to BioTime and did not result in a tax payment obligation, the $71.7 million unrealized gain on the OncoCyte Deconsolidation generated a deferred tax liability that was fully offset by BioTime's net operating losses. Subsequent to the OncoCyte Deconsolidation, an unrealized loss of $2.9 million was recorded on the OncoCyte shares during the year ended December 31, 2017, which was fully offset by a corresponding increase in BioTime's valuation allowance.

Similarly, the Asterias Deconsolidation on May 13, 2016 was not a taxable transaction to BioTime and did not result in a tax payment obligation, the $49.0 million gain on the Asterias Deconsolidation generated a deferred tax liability that was fully offset by BioTime's net operating losses. Subsequent to the Asterias Deconsolidation, an unrealized gain of $34.3 million was recorded on the Asterias shares during the year ended December 31, 2016, which was fully offset by available net operating losses and the corresponding release of BioTime's valuation allowance on deferred tax assets. An unrealized loss of $51.1 million was recorded on the Asterias shares during the year ended December 31, 2017 which was fully offset by a corresponding increase in BioTime's valuation allowance.

In connection with the deconsolidation of OncoCyte and Asterias (see Note 3), the market value of the respective shares BioTime holds creates a deferred tax liability to BioTime based on the closing price of the security, less the tax basis of the security BioTime has in such shares. The deferred tax liability generated by OncoCyte and Asterias shares that BioTime holds as of December 31, 2017, is a source of future taxable income to BioTime, as prescribed by ASC 740-10-30-17, that will more likely than not result in the realization of its deferred tax assets to the extent of those deferred tax liabilities. This deferred tax liability is determined based on the closing price of those securities as of December 31, 2017.

On June 6, 2017, BioTime and LifeMap Sciences entered into a Debt Conversion Agreement whereby BioTime acquired additional stock in LifeMap Sciences (see Note 10) and other assets, including intellectual property in exchange for intercompany indebtedness of approximately $8.7 million owed to BioTime. This transaction had no financial reporting impact, except for transactions between noncontrolling interests of LifeMap Sciences discussed in Note 10. BioTime and LifeMap Sciences recorded the tax effect of the transactions in equity instead of the tax provision in accordance with ASC 740-20-45-11(g), which requires that the tax effects of all changes in tax bases of assets and liabilities caused by transactions among or with shareholders be included in equity. In connection with the June 2017 transactions, LifeMap Sciences utilized approximately $3.3 million in net operating loss carryforwards with a corresponding release of the valuation allowance recorded through equity in accordance with ASC 740-20-45-11(g).

For income tax purposes, the purchase by BioTime of LifeMap Sciences' intellectual property and other assets resulted in a taxable gain to LifeMap Sciences of $3.7 million for the year ended December 31, 2017. Although LifeMap Sciences had sufficient current year operating losses and regular net operating loss carryforwards to offset the entire gain, it incurred a federal alternative minimum tax payable of $22,000 as of December 31, 2017. As previously noted under the 2017 Tax Act, corporations are no longer subject to the AMT, effective for taxable years beginning after December 31, 2017. To the extent a company has an AMT credit from a prior year, the company can carry the credit forward to offset regular tax. To the extent the company does not have a federal tax liability, a portion of the AMT credit is refundable each year starting in 2018, with any remaining balance fully refundable in 2021. As LifeMap Sciences will ultimately receive a full refund of the current AMT payable, fully offsetting the current provision, there is no tax provision or benefit recorded for the year ended December 31, 2017.

A valuation allowance is provided when it is more likely than not that all or some portion of the deferred tax assets will not be realized. BioTime established a full valuation allowance for all periods presented due to the uncertainty of realizing future tax benefits from its net operating loss carryforwards and other deferred tax assets, including foreign net operating losses generated by its subsidiaries.

No tax provision or benefit was recorded for income taxes for the year ended December 31, 2016. A deferred income tax benefit of $4.5 million was recorded for the year ended December 31, 2015, of which $4.8 million was related to the federal benefit and $290,000 was related to state tax expense.

Other Income Tax Matters

Internal Revenue Code Section 382 places a limitation ("Section 382 Limitation") on the amount of taxable income that can be offset by net operating loss ("NOL") carryforwards after a change in control (generally greater than 50% change in ownership within a three-year period) of a loss corporation. California has similar rules. Generally, after a change in control, a loss corporation cannot deduct NOL carryforwards in excess of the Section 382 Limitation. Due to these "change in ownership" provisions, utilization of the NOL and tax credit carryforwards may be subject to an annual limitation regarding their utilization against taxable income in future periods. As of December 31, 2017, no such change in control pursuant to Section 382 had occurred.

BioTime files a U.S. federal income tax return as well as various state and foreign income tax returns. In general, BioTime is no longer subject to tax examination by major taxing authorities for years before 2013. Although the statute is closed for purposes of assessing additional income and tax in these years, the taxing authorities may still make adjustments to the net operating loss and credit carryforwards used in open years. Therefore, the statute should be considered open as it relates to the net operating loss and credit carryforwards used in open years.

BioTime may be subject to potential examination by U.S. federal, U.S. states or foreign jurisdiction authorities in the areas of income taxes. These potential examinations may include questioning the timing and amount of deductions, the nexus of income among various tax jurisdictions and compliance with U.S. federal, U.S. state and foreign tax laws. BioTime's management does not expect that the total amount of unrecognized tax benefits will materially change over the next twelve months.

BioTime's practice is to recognize interest and penalties related to income tax matters in tax expense. As of December 31, 2017 and 2016, BioTime has no accrued interest and penalties.

14. Segment Information

BioTime's executive management team, as a group, represents the entity's chief operating decision makers. BioTime's executive management team views BioTime's operations as one segment that includes, the research and development of therapeutic products for retinal, orthopedics, oncology, and neurological diseases and disorders, blood and vascular system diseases and disorders, blood plasma volume expansion, diagnostic products for the early detection of cancer, and hydrogel products that may be used in surgery, and products for pluripotent cell technologies. As a result, the financial information disclosed materially represents all of the financial information related to BioTime's sole operating segment.

15. Enterprise-Wide Disclosures

Geographic Area Information

Total revenues, including license fees, royalties, grant income, and other revenues by geographic area are based on the country of domicile of the customer, licensee or grantor (in thousands):

	Year Ended December 31,		
Geographic Area	**2017**	**2016**	**2015**
United States	$ 1,651	$ 4,497	$ 5,976
Foreign [1]	1,807	1,426	1,060
Total revenues	$ 3,458	$ 5,923	$ 7,036

(1) Foreign revenues are primarily earned in Israel.

The composition of BioTime's long-lived assets, consisting of property, plant and equipment, net, between those in the United States and in foreign countries, as of December 31, 2017 and 2016, is set forth below (in thousands):

	2017 [1]	2016 [2]
Domestic	$ 2,746	$ 3,418
Foreign	2,787	2,111
Total	$ 5,533	$ 5,529

(1) Reflects the effect of the OncoCyte Deconsolidation.

(2) Reflects the effect of the Asterias Deconsolidation.

Assets in foreign countries principally include laboratory equipment and leasehold improvements in Israel.

Major Sources of Revenues

The following table shows our major sources of revenues, as a percentage of total revenues, that were recognized during the years ended December 31, 2017, 2016, and 2015:

	Year Ended December 31,		
Sources of Revenues	**2017**	**2016**	**2015**
CIRM grant income [1]	-%	38.0%	42.7%
NIH grant income [2]	5.0%	-%	6.5%
IIA (formerly OCS) grant income (Cell Cure, Israel)	43.2%	24.0%	14.4%
Subscriptions, advertising, licensing and other (various customers) [3]	49.4%	35.0%	29.4%
Other	2.4%	3.0%	7.0%

(1) Reflects income from grants to Asterias from the California Institute for Regenerative Medicine (CIRM) prior to the Asterias Deconsolidation.

(2) For 2017, reflects income from grants to BioTime from the National Institutes of Health (NIH). For 2015, reflects income from grants to ReCyte Therapeutics from the NIH.

(3) For each of 2017 and 2016, one individual customer represents greater than 5% of total revenues. For 2015, no individual customer greater than 5% of total revenues.

During 2017, BioTime received $1.4 million and recognized $1.2 million (net of $168,000 in royalty and commission fees included in cost of sales) in net subscription and advertisement revenues from LifeMap Sciences' online database business primarily related to its *GeneCards*® database. During 2016, BioTime received $972,000 and recognized $668,000 (net of $304,000 in royalty and commission fees in cost of sales) in net subscription and advertisement revenues from LifeMap Sciences' online database business.

16. Selected Quarterly Financial Information (UNAUDITED, in thousands, except per share data)

BioTime has derived this data from the unaudited consolidated interim financial statements that, in BioTime' s opinion, have been prepared on substantially the same basis as the audited consolidated financial statements contained herein and include all normal recurring adjustments necessary for a fair presentation of the financial information for the periods presented. These unaudited consolidated quarterly results should be read in conjunction with the consolidated financial statements and notes thereto included herein. The consolidated operating results in any quarter are not necessarily indicative of the consolidated results that may be expected for any future period.

Year Ended December 31, 2017	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Revenues, net	$ 333	$ 376	$ 1,636	$ 945
Operating expenses	11,595	10,694	11,149	10,508
Loss from operations	(11,262)	(8,564)	(9,513)	(9,563)
Net income (loss) attributable to BioTime	49,288	(11,651)	14,321	(71,934)
Basic net income (loss) per share	$ 0.46	$ (0.11)	$ 0.12	$ (0.58)
Year Ended December 31, 2016				
Revenues, net	$ 1,848	$ 1,171	$ 1,441	$ 1,103
Operating expenses	25,606	15,574	10,996	12,356
Loss from operations	(23,758)	(14,403)	(9,555)	(11,253)
Net income (loss) attributable to BioTime	(17,112)	24,549	31,199	(4,945)
Basic net income (loss) per share	$ (0.19)	$ 0.26	$ 0.30	$ (0.05)

Quarterly and year-to-date computations of net income (loss) per share amounts are calculated using the respective period weighted average shares outstanding. Therefore, the sum of the per share amounts for the quarters may not agree with the per share amounts for the year.

17. Subsequent Events

On January 28, 2018, Cell Cure entered into another lease agreement with its current landlord for an additional 934 square meters (approximately 10,054 square feet) of office space in the same facility in Jerusalem, Israel under a lease that expires on December 31, 2025, with two additional options to extend the lease for 5 years each ("the January 2018 Lease"). The January 2018 Lease will commence on April 1, 2018, and includes a leasehold improvement construction allowance of up to NIS 4,000,000 (approximately up to $1.2 million) from the landlord. The leasehold improvements are expected to be completed by September 30, 2018. Combined base rent and construction allowance payments, assuming the full allowance is utilized, for the January 2018 Lease will be NIS 93,470 per month (approximately $27,000 per month) beginning on October 1, 2018.

On February 28, 2018, AgeX sold warrants to purchase 1,473,600 shares of common stock (the "AgeX Warrants") for $0.50 cents per warrant for aggregate net cash proceeds to AgeX of $736,800. The AgeX Warrants are exercisable at $2.50 per share and expire the earliest to occur of (i) February 28, 2021, (ii) on or after January 31, 2019, after notice from AgeX, if the AgeX shares are publicly traded, the price of AgeX common stock exceeds $3.75 per share for 20 trading days (on a volume weighted average price basis, as defined), and (iii) a change of control, as defined in warrant agreement. If the AgeX shares are not publicly traded, the AgeX Warrants may be exercised only during the period commencing ten business days prior to the expiration date, as defined in the warrant agreement.

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

Not applicable.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

It is management's responsibility to establish and maintain adequate internal control over all financial reporting pursuant to Rule 13a-15 under the Securities Exchange Act of 1934 ("Exchange Act"). Our management, including our principal executive officer and our principal financial officer, have reviewed and evaluated the effectiveness of our disclosure controls and procedures as of the end of our fourth quarter. Following this review and evaluation, management collectively determined that our disclosure controls and procedures are effective to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act (i) is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms; and (ii) is accumulated and communicated to management, including our chief executive officer and our chief financial officer, as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting that occurred during the period covered by this Annual Report on Form 10-K that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting

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

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and
- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. The scope of management's assessment of the effectiveness of internal control over financial reporting includes our consolidated subsidiaries.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2017, based on criteria established in the 2013 Internal Control - Integrated Framework issued by COSO. Based on this assessment, management believes that, as of that date, our internal control over financial reporting was effective.

This Report includes an attestation report of our independent registered public accounting firm regarding internal control over financial reporting for the year ended December 31, 2017. The attestation is included with the accounting firm's report on our audited consolidated financial statements.

ITEM 9B. OTHER INFORMATION

Not applicable

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE

The name, age, and background of each of our directors are contained under the caption “Election of Directors” in our Proxy Statement for our 2018 Annual Meeting of Shareholders, and are incorporated herein by reference. Information about our executive officers, committees of the Board of Directors, and compensation of directors is reported under the caption “Corporate Governance” in our Proxy Statement for our 2018 Annual Meeting of Shareholders, and is incorporated herein by reference.

We have a written Code of Ethics that applies to our principal executive officer, our principal financial officer and accounting officer, our other executive officers, and our directors. The purpose of the Code of Ethics is to promote (i) honest and ethical conduct, including the ethical handling of actual or apparent conflicts of interest between personal and professional relationships; (ii) full, fair, accurate, timely, and understandable disclosure in reports and documents that we file with or submit to the Securities and Exchange Commission and in our other public communications; (iii) compliance with applicable governmental rules and regulations; (iv) prompt internal reporting of violations of the Code of Ethics to an appropriate person or persons identified in the Code; and (v) accountability for adherence to the Code. A copy of our Code of Ethics has been posted on our internet website and can be found at *www.biotimeinc.com*. If we amend or waive a provision of our Code of Ethics that applies to our chief executive officer or chief financial officer, we will post the amended Code of Ethics or information about the waiver on our internet website.

Information about our compliance with Section 16(a) of the Securities Exchange Act of 1934 is reported under the caption “Compliance with Section 16(a) of the Securities Exchange Act of 1934” in our Proxy Statement for our 2018 Annual Meeting of Shareholders, and is incorporated herein by reference.

ITEM 11. EXECUTIVE COMPENSATION

Information on compensation of our executive officers is reported under the caption “Executive Compensation” in our Proxy Statement for our 2018 Annual Meeting of Shareholders, and is incorporated herein by reference.

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

Information on the number of common shares of BioTime beneficially owned by each shareholder known by us to be the beneficial owner of 5% or more of our common shares, and by each director and named executive officer, and by all directors and named executive officers as a group, is contained under the caption “Principal Shareholders” in our Proxy Statement for our 2018 Annual Meeting of Shareholders, and is incorporated herein by reference.

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

Information about transactions with related persons; review, and approval or ratification of transactions with related persons; and director independence is reported under the captions Principal Shareholders—Certain Relationships and Related Transactions” and “Election of Directors” in our Proxy Statement for our 2018 Annual Meeting of Shareholders, and is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

Information about our Audit Committee’s pre-approval policy for audit services, and information on our principal accounting fees and services is reported under the caption “Ratification of the Selection of Our Independent Auditors” in our Proxy Statement for our 2018 Annual Meeting of Shareholders, and is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a-1) Financial Statements.

The following financial statements of BioTime are filed in this Report:

Consolidated Balance Sheets
Consolidated Statements of Operations
Consolidated Statements of Comprehensive Loss
Consolidated Statements of Changes in Shareholders' Equity
Consolidated Statements of Cash Flows

Notes to Consolidated Financial Statements

(a-2) Financial Statement Schedules

Audited financial statements of Asterias are filed as Exhibit 99.1

We will amend this Report to include audited financial statements of OncoCyte for the year ended December 31, 2017. All other schedules are omitted because the required information is inapplicable or the information is presented in the financial statements or the notes thereto.

(a-3) Exhibits.

Exhibit Number	Description
3.1	Restated Articles of Incorporation (1)
3.2	By-Laws, As Amended (2)
4.1	Specimen of Common Share Certificate (3)
4.2	Form of Warrant Issued June 2013 (4)
4.3	Warrant Agreement, dated as of October 1, 2013, as amended September 19, 2014, between BioTime, Inc. and American Stock Transfer & Trust Company, LLC as Warrant Agent for the benefit of Asterias Biotherapeutics, Inc. (5)
4.4	Warrant Issued October 1, 2013 to Asterias Biotherapeutics, Inc. (included in Exhibit 4.7) (5)
10.1	2002 Stock Option Plan, as amended (6)
10.2	Employment Agreement, dated October 10, 2007, between BioTime, Inc. and Michael D. West. (7)
10.3	Commercial License and Option Agreement between BioTime and Wisconsin Alumni Research Foundation (8)
10.4	License Agreement, dated July 10, 2008, between Embryome Sciences, Inc. and Advanced Cell Technology, Inc. (9)
10.5	First Amendment of Commercial License and Option Agreement, dated March 11, 2009, between BioTime and Wisconsin Alumni Research Foundation (10)
10.6	OrthoCyte Corporation 2010 Stock Option Plan; Form of OrthoCyte Corporation Stock Option Agreement (11)
10.7	BioTime Asia, Limited 2010 Stock Option Plan; Form of BioTime Asia Limited Stock Option Agreement (11)
10.8	License Agreement between BioTime, Inc. and Cornell University (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (12)
10.9	LifeMap Sciences, Inc. 2011 Stock Option Plan; and Form of LifeMap Sciences, Inc. Stock Option Agreement (13)

10.10	Exclusive License Agreement, dated February 15, 2006, between Glycosan BioSystems, Inc. and the University of Utah Research Foundation, as amended (14)
10.11	Form of Employee Incentive Stock Option Agreement (15)
10.12	Form of Non-employee Director Stock Option Agreement (15)
10.13	Option Agreement, dated March 4, 2014, between BioTime and certain investors (16)
10.14	Employment Agreement, dated December 29, 2014, between BioTime, Inc. Aditya Mohanty (17)
10.15	2012 Equity Incentive Plan, as amended (18)
10.16	Research & Development Agreement, dated September 29, 2015, between OrthoCyte Corporation and Heraeus Medical GmbH (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (19)
10.17	License Agreement, dated September 29, 2015, between OrthoCyte Corporation and Heraeus Medical GmbH (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (19)
10.18	Employment Agreement, dated November 16, 2015, between BioTime, Inc. and Russell Skibsted (20)
10.19	Amendment of Employment Agreement, dated November 24, 2015, between BioTime, Inc. and Michael D. West (21)
10.20	Amendment of Employment Agreement, dated November 24, 2015, between BioTime, Inc. and Aditya Mohanty (21)
10.21	Lease, dated December 10, 2015, between BioTime, Inc. and BSREP Marina Village Owner LLC (22)
10.22	Cross-License Agreement, dated February 16, 2016, among Asterias Biotherapeutics, Inc., BioTime, Inc., and ES Cell International Pte. Ltd. (23)
10.23	Cell Cure Neurosciences Ltd. Share Option Plan (24)
10.24	Form of Cell Cure Neurosciences Ltd. Share Option Plan Option Agreement (24)
10.25	Controlled Equity Offering[SM] Sales Agreement, dated as of April 6, 2017 between BioTime, Inc., and Cantor Fitzgerald & Co. (25)
10.26	Second Amended and Restated License Agreement, dated June 15, 2017, between Cell Cure Neurosciences, Ltd. and Hadasit Medical Research Services and Development Ltd. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (26)
10.27	Debt and Note Purchase Agreement, dated June 16, 2017, as amended June 29, 2017, between BioTime, Inc. and HBL-Hadasit Bio-Holdings Ltd. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (26)
10.28	Share Purchase and Transfer Agreement, dated June 16, 2017, by and among BioTime, Inc. and HBL-Hadasit Bio-Holdings Ltd. and Cell Cure Neurosciences Ltd. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (26)
10.29	2017 Amendment to 2012 Equity Incentive Plan (27)
10.30	Asset Contribution and Separation Agreement, dated August 17, 2017, between BioTime, Inc. and AgeX Therapeutics, Inc. (28)

10.31	License Agreement, dated August 17, 2017, between BioTime, Inc. and AgeX Therapeutics, Inc. (28)
10.32	Option to Purchase Shares of AgeX Therapeutics, Inc., dated August 4, 2017, granted by BioTime, Inc. to Alfred D. Kingsley (28)
10.33	AgeX Therapeutics, Inc. 2017 Equity Incentive Plan (29)
10.34	Form of AgeX Therapeutics, Inc. Stock Option Agreement (29)
10.35	Amendment, dated January 8, 2018, to Second Amended and Restated License Agreement, dated June 15, 2017, between Cell Cure Neurosciences, Ltd. and Hadasit Medical Research Services and Development *
21.1	List of Subsidiaries *
23.1	Consent of OUM & Co. LLP *
23.2	Consent of OUM & Co. LLP for Financial Statements of Asterias Biotherapeutics, Inc.*
31	Rule 13a-14(a)/15d-14(a) Certification *
32	Section 1350 Certification *
99.1	Financial Statements of Asterias Biotherapeutics, Inc*.
101	Interactive Data File
101.INS	XBRL Instance Document *
101.SCH	XBRL Taxonomy Extension Schema *
101.CAL	XBRL Taxonomy Extension Calculation Linkbase *
101.LAB	XBRL Taxonomy Extension Label Linkbase*
101.PRE	XBRL Taxonomy Extension Presentation Linkbase*
101.DEF	XBRL Taxonomy Extension Definition Document*

(1) Incorporated by reference to BioTime's Current Report on Form 8-K/A, filed with the Securities and Exchange Commission on August 14, 2017

(2) Incorporated by reference to BioTime's Current Report on Form 8-K, filed with the Securities and Exchange Commission on September 7, 2017

(3) Incorporated by reference to Registration Statement on Form S-1, File Number 33-44549 filed with the Securities and Exchange Commission on December 18, 1991, and Amendment No. 1 and Amendment No. 2 thereto filed with the Securities and Exchange Commission on February 6, 1992 and March 7, 1992, respectively

(4) Incorporated by reference to BioTime's Current Report on Form 8-K filed with the Securities and Exchange Commission on June 3, 2013

(5) Incorporated by reference to BioTime's Current Report on Form 8-K filed with the Securities and Exchange Commission on September 23, 2014

(6) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended June 30, 2009

(7) Incorporated by reference to BioTime's Annual Report on Form 10-KSB for the year ended December 31, 2007

(8) Incorporated by reference to BioTime's Current Report on Form 8-K, filed with the Securities and Exchange Commission on January 9, 2008

(9) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended June 30, 2008

(10) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2008

(11) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2010

(12) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2011

(13) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2011

(14) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2012

(15) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2013

(16) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2013

(17) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2014

(18) Incorporated by reference to Registration Statement on Form S-8, File Number 333-205661 filed with the Securities and Exchange Commission on July 15, 2015

(19) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2015

(20) Incorporated by reference to BioTime's Current Report on Form 8-K, filed with the Securities and Exchange Commission on November 16, 2015

(21) Incorporated by reference to BioTime's Current Report on Form 8-K, filed with the Securities and Exchange Commission on November 24, 2015

(22) Incorporated by reference to BioTime's Current Report on Form 8-K, filed with the Securities and Exchange Commission on December 9, 2015

(23) Incorporated by reference to BioTime's Current Report on Form 8-K, filed with the Securities and Exchange Commission on February 18, 2016

(24) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2016

(25) Incorporated by reference to BioTime's Registration Statement on Form S-3, File Number 333-217182 filed with the Securities and Exchange Commission on April 6, 2017

(26) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended June 30, 2017

(27) Incorporated by reference to Registration Statement on Form S-8, File Number 333-219204 filed with the Securities and Exchange Commission on July 7, 2017

(28) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2017

(29) Incorporated by reference to BioTime's Current Report on Form 8-K, filed with the Securities and Exchange Commission on October 16, 2017

* Filed herewith

ITEM 16. SUMMARY

None

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 on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized on the 15th day of March 2018.

BIOTIME, INC.

By: */s/ Michael D. West*
Michael D. West, Ph.D.
Co-Chief Executive Officer

By: */s/ Aditya Mohanty*
Aditya Mohanty
Co-Chief Executive Officer

Signature	Title	Date
/s/*Michael D. West* MICHAEL D. WEST, PH.D.	Co-Chief Executive Officer and Director (Principal Executive Officer)	March 15, 2018
/s/*Aditya Mohanty* ADITYA MOHANTY	Co-Chief Executive Officer and Director (Principal Executive Officer)	March 15, 2018
/s/*Russell Skibsted* RUSSELL SKIBSTED	Chief Financial Officer (Principal Financial and Accounting Officer)	March 15, 2018
/s/*Deborah Andrews* DEBORAH ANDREWS	Director	March 15, 2018
/s/*Neal C. Bradsher* NEAL C. BRADSHER	Director	March 15, 2018
/s/*Stephen C. Farrell* STEPHEN C. FARRELL	Director	March 15, 2018
/s/*Alfred D. Kingsley* ALFRED D. KINGSLEY	Director	March 15, 2018
/s/*Michael H. Mulroy* MICHAEL H. MULROY	Director	March 15, 2018
/s/*Angus C. Russell* ANGUS C. RUSSELL	Director	March 15, 2018
/s/*David Schlachet* DAVID SCHLACHET	Director	March 15, 2018

FIRST AMENDMENT TO SECOND AMENDED AND RESTATED LICENSE AGREEMENT

This First Amendment (this "**Amendment**") is made on November __, 2017 as an amendment to the Second Amended and Restated License Agreement of June 15, 2017 (the "**Agreement**"), by and between **HADASIT MEDICAL RESEARCH SERVICES AND DEVELOPMENT LTD.** (**"Hadasit"**) and **CELL CURE NEUROSCIENCES LTD.** (the **"Company"**) (each a **"Party"** and jointly the **"Parties"**), effective as of the same date as the Agreement.

WHEREAS: The Parties have discussed the terms of the Agreement and have mutually agreed to further amend the Agreement terms as set out herein.

NOW THEREFORE THE PARTIES DO HEREBY AGREE AS FOLLOWS:

1. Capitalized terms used but not defined herein shall, unless otherwise indicated, have the meaning ascribed to such terms in the Agreement.

2. Annex A which lists the Licensed Patents is hereby replaced, in its entirety, with the updated listing dated October 24, 2017 attached hereto and marked "Annex A – Patents".

3. The Parties hereby acknowledge and confirm that while Cell Cure has borne the costs of US patent 8597947 directed at undifferentiated stem cell culture systems, such patent is not included in the Licensed Patents. Therefore, Hadasit shall reimburse Cell Cure for such costs in a total of NIS 146,656.08 by no later than November 15, 2017. Cell Cure shall be entitled to set any unpaid portion of this debt off against any amounts that become due to be paid by Cell Cure to Hadasit under the Agreement from time to time, by written notice to Hadasit.

4. Except as specifically provided in and required by this Amendment, the terms and conditions of the Agreement shall remain in full force and effect. In the event of a contradiction between the provisions of this Amendment and the provisions of the Agreement, the provisions of this Amendment shall prevail.

IN WITNESS WHEREOF, the Parties have duly executed this Amendment:

HADASIT		**CELL CURE NEUROSCIENCES LTD**.	
By:	*/s/ Dr. Tamar Raz*	By:	*/s/ Rami Skaliter*
Name:	Dr, Tamar Raz	Name:	Rami Skaliter
Title:	Chief Executive Officer	Title:	Chief Executive Officer
Date:	December 18, 2017	Date:	January 8, 2018

Attached: Annex A - Patents

Appendix A – Patent Listing

Family: 3440 Title: Reverse hexagonal mesophases (hii) and uses thereof

Inventor	University	Faculty	Department
Amar-Yuli Idit	HUJI	Faculty of Science	The Institute of Chemistry
Aserin Abraham	HUJI	Faculty of Science	The Institute of Chemistry
Bitan-Cherbachovsky Liron	HUJI	Faculty of Science	The Casali Center for Applied Chemistry
Libster Dima	HUJI	Faculty of Science	The Casali Center for Applied Chemistry
Mishraki Tehila	HUJI	Faculty of Science	The Casali Center for Applied Chemistry
Garti Nissim	HUJI	Faculty of Science	The Institute of Chemistry

Patent ID	Application Status	Country	Date	Publication Number	Date	Patent Number
3440-00	Expired	US	25/06/2009	61/220,398		
3440-01	Expired	US	09/02/2010	61/302,649		
3440-02	Exhausted	PCT	24/06/2010	PCT/IL2010/000507	29/12/2010	WO 2010/150262
3440-03	Examination	Europe	24/06/2010	10738041.2	19/09/2012	2498754
3440-04	Allowed	Israel	24/06/2010	217115		
3440-05	Examination	US	24/06/2010	13/379,769	07/02/2013	US-2013/0034538

Family: 6150 Title: A novel method for the solubilization of cannabis based on improved modified NSSL

Inventor	University	Faculty	Department
Aserin Abraham	HUJI	Faculty of Science	The Institute of Chemistry
GARTI LEVI Sharon			
Garti Nissim	HUJI	Faculty of Science	The Institute of Chemistry

Patent ID	Application Status	Country	Date	Publication Number	Date	Patent Number
6150-00	Filed	NA	29/09/2016	248149		

Family: 6151 Title: A novel process for the extraction of CBD/THC using NSSL

Inventor	University	Faculty	Department
Aserin Abraham	HUJI	Faculty of Science	The Institute of Chemistry
Edri Rotem			
GARTI LEVI Sharon			
Garti Nissim	HUJI	Faculty of Science	The Institute of Chemistry

Patent ID	Application Status	Country	Date	Publication Number	Date	Patent Number
6151-00	Filed	Israel	29/09/2016	248150		

APPENDIX C – DEVELOPMENT PLAN

Stage	Description (Activities to be done either by the Company, a Company Affiliate or a Sublicensee)	Timeline Milestones – each an Essential Milestone
Toxicology	Completion of formal pre-clinical toxicology studies	50 months from the Effective Date
Phase I	Initiation of a Phase I clinical trial with the selected formulated drug	72 months from the Effective Date
Phase III	Initiation of a Phase III clinical trial with the selected formulated drug	90 months from the Effective Date
First Commercial Sale	First Commercial Sale of the selected formulated drug	108 months from the Effective Date

For purposes of this Appendix C, Effective Date shall mean the date of the Third Amendment (i.e. February 9, 2017).

October 24, 2017

Annex A
Patents

Part I – Licensed Patents on the Effective Date (status as of the Date of the Second Amendment)

STEM CELLS CULTURE SYSTEMS – Only claims 20-39 of PCT application IL2005/001397 (249-01) and the parts of the correponding National Phase applications that include the mentioned claims are included in the exclusive license granted to the Company. In addition CellCure will have a limited non-exclusive right under claims 1-3 of PCT application IL2005/001397 (249-01) and the parts of the correponding National Phase applications that include the mentioned claims, solely to the extent necessary to use the Licensed Feeder Cell Line (as such term is defined in the Agreement) in accordance with the terms of the Agreement. CellCure will not have any other rights under claims 1-3. Without limiting the generality of the foregoing, no rights are granted under claims 1-3 of the abovementioned patent applications with respect to any feeder cell lines other than the Licensed Feeder Cell Lines.

Our Ref Client Ref	Country	Earliest Priority	Entry Date	Filing Date Application No.	Publication Date + No. Issue Date + Patent No.	Status	Assignee Inventor
47631 249-00	USA PRO			29-Dec-2004 60/639,809		Expired	Hadasit Medical Research Services and Development Ltd. BEN-SHUSHAN Etti ; TANNENBAUM Shelly ; ITSYKSON Pavel ; BANIN Eyal ; REUBINOFF Benjamin Eithan
47632 249-01	PCT	29-Dec-2004 60/639,809		29-Dec-2005 IL2005/001397	Publ. Date: 06-Jul-2006 Publ. #: WO2006/070370	Expired	Hadasit Medical Research Services and Development Ltd. BEN-SHUSHAN Etti ; TANNENBAUM Shelly ; ITSYKSON Pavel ; BANIN Eyal ; REUBINOFF Benjamin Eithan
66284 249-10	Europe DIV	29-Dec-2004 60/639,809	15-Jul-2011	29-Dec-2005 11174158.3	Publ. Date: 25-Jan-2012 Publ. #: 2410044	Pending	Hadasit Medical Research Services and Development Ltd. BEN-SHUSHAN Etti ; TANNENBAUM Shelly ; ITSYKSON Pavel ; BANIN Eyal ; REUBINOFF Benjamin Eithan
249-03	05821535.1 Europe Validated in 7 European countries	29-Dec-2004 60/639,809		29-Dec-2005	EP1844136 B1	Granted 27.8.14	Hadasit Medical Research Services and Development Ltd. BEN-SHUSHAN Etti ; TANNENBAUM Shelly ; ITSYKSON Pavel ; BANIN Eyal ; REUBINOFF Benjamin
249-09	US 13/005,978	29-Dec-2004 60/639,809	January 13, 2011	29-Dec-2005	US20110177594 US9005965 BB	Issued April 14, 2015	Hadasit Medical Research Services and Development Ltd. BEN-SHUSHAN Etti ; TANNENBAUM Shelly ; ITSYKSON Pavel ; BANIN Eyal ; REUBINOFF Benjamin

STEM CELL-DERIVED RETINAL PIGMENT EPITHELIAL CELLS

Our Ref Client Ref	Country	Earliest Priority	Entry Date	Filing Date Application No.	Publication Date + No. Issue Date + Patent No.	Status	Assignee Inventor
47433 315-01	PCT	18-Apr-2007 60/907,818		27-Apr-2008 IL2008/000556	Publ. Date: 30-Oct-2008 Publ. #: WO2008/129554	Expired	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan
47434 315-04	USA NP	18-Apr-2007 60/907,818	19-Oct-2009	27-Apr-2008 12/450,943	Publ. Date: 03-Feb-2011 Publ. #: 2011-0027333-A1 **17-Feb-2015 8,956,866**	Granted	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak

RETINAL PIGMENT EPITHELIAL CELLS DIFFERENTIATED FROM EMBRYONIC STEM CELLS WITH NICOTINAMIDE AND ACTIVIN

Our Ref Client Ref	Country	Earliest Priority	Entry Date	Filing Date Application No.	Publication Date + No. Issue Date + Patent No.	Status	Assignee Inventor
61423 315-14	USA DIV	18-Apr-2007 60/907,818	29-Dec-2014	27-Apr-2008 14/583,838	Publ. Date: 07-May-2015 Publ. #: 2015-0125506-A1	Pending	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
61424 315-15	USA DIV	18-Apr-2007 60/907,818	29-Dec-2014	27-Apr-2008 14/583,848	Publ. Date: 30-Apr-2015 Publ. #: 2015-0118749-A1	Pending	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak

STEM CELL-DERIVED RETINAL PIGMENT EPITHELIAL CELLS							
Our Ref Client Ref	**Country**	**Earliest Priority**	**Entry Date**	**Filing Date Application No.**	**Publication Date + No. Issue Date + Patent No.**	**Status**	**Assignee Inventor**
47435 315-03	Europe NP	18-Apr-2007 60/907,818	18-Nov-2009	27-Apr-2008 08738258.6	Publ. Date: 27-Jan-2010 Publ. #: 2147094 **08-Oct-2014 2147094**	Granted	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
49360 315-10	Hong Kong NP	18-Apr-2007 60/907,818	20-Jul-2010	27-Apr-2008 10107017.2	Publ. Date: 22-Oct-2010 Publ. #: 1140791A **27-Mar-2015 HK1140791**	Granted	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
54561 315-11	Europe DIV	18-Apr-2007 60/907,818	21-Aug-2012	27-Apr-2008 12181140.0	Publ. Date: 06-Feb-2013 Publ. #: 2554661 **19-Nov-2014 2554661**	Granted	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
61018 315-12	Europe DIV	18-Apr-2007 60/907,818	18-Nov-2014	27-Apr-2008 14193621.1	Publ. Date: 24-Jun-2015 Publ. #: 2886646	Pending	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
56710 315-16	Hong Kong DIV	18-Apr-2007 60/907,818	04-Jun-2013	27-Apr-2008 13106571.9	**24-Jul-2015 HK1179647**	Granted	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
64780 315-17	Hong Kong DIV	18-Apr-2007 60/907,818	16-Dec-2015	27-Apr-2008 15112372.6	Publ. Date: 27-May-2016 Publ. #: 1211619A	Pending	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
47436 315-08	Australia NP	18-Apr-2007 60/907,818	17-Nov-2009	27-Apr-2008 2008242106	**29-Aug-2013 2008242106**	Granted	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
47437 315-02	Canada NP	18-Apr-2007 60/907,818	16-Oct-2009	27-Apr-2008 2,684,460	**03-Jan-2017 2,684,460**	Granted	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
47438 315-05	Japan NP	18-Apr-2007 60/907,818	19-Oct-2009	27-Apr-2008 2010-503665	**25-Oct-2013 5,395,058**	Granted	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan

METHODS OF GENERATING PLURIPOTENT STEM CELL-DERIVED RETINAL PIGMENT EPITHELIAL CELLS							
Our Ref Client Ref	**Country**	**Earliest Priority**	**Entry Date**	**Filing Date Application No.**	**Publication Date + No. Issue Date + Patent No.**	**Status**	**Assignee Inventor**
47439 315-06	Israel NP	18-Apr-2007 60/907,818	18-Oct-2009	27-Apr-2008 201600	Publ. Date: 24-Mar-2013 Publ. #: 201600 **25-Jun-2013** **201600**	Granted	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
Our Ref Client Ref	**Country**	**Earliest Priority**	**Entry Date**	**Filing Date Application No.**	**Publication Date + No. Issue Date + Patent No.**	**Status**	**Assignee Inventor**
56027 315-19	Israel DIV	18-Apr-2007 60/907,818	11-Mar-2013	27-Apr-2008 225163		Pending	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
47440 315-07	China NP	18-Apr-2007 60/907,818	18-Dec-2009	27-Apr-2008 200880020748.0	Publ. Date: 31-Mar-2010 Publ. #: 101688178 **04-Dec-2013** **200880020748.0**	Granted	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
57677 315-13	China DIV	18-Apr-2007 60/907,818	16-Oct-2013	27-Apr-2008 201310484803.4	Publ. Date: 05-Feb-2014 Publ. #: CN 103555654 A **20-Apr-2016** **ZL201310484803.4**	Granted	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
59417 315-18	Hong Kong DIV	18-Apr-2007 60/907,818	19-May-2014	27-Apr-2008 14104657.0	Publ. Date: 25-Jul-2014 Publ. #: 1191377A	Allowed	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak
47441 315-09	India NP	18-Apr-2007 60/907,818	18-Nov-2009	27-Apr-2008 6790/CHENP/2009		Pending	Hadasit Medical Research Services and Development Ltd. IDELSON Masha ; ALPER-PINUS Ruslana ; OBOLENSKY Alex ; BANIN Eyal ; REUBINOFF Benjamin Eithan ; HEMO Yitzchak

Part II – Hadasit IP

LARGE SCALE PRODUCTION OF RETINAL PIGMENT EPITHELIAL CELLS –							
Our Ref Client Ref	**Country**	**Earliest Priority**	**Entry Date**	**Filing Date Application No.**	**Publication Date + No. Issue Date + Patent No.**	**Status**	**Assignee Inventor**
62470 558-00	USA PRO			29-Jul-2015 62/198,160		Expired	Hadasit Medical Research Services and Development Ltd. REUBINOFF Benjamin Eithan ; SINGER Orna
66071 558-01	PCT	29-Jul-2015 62/198,160		28-Jul-2016 IL2016/050829		Filed	Hadasit Medical Research Services and Development Ltd. REUBINOFF Benjamin Eithan ; SINGER Orna

METHODS OF PRODUCING PHOTORECEPTOR CELLS FOR THE TREATMENT OF RETINAL DISEASES–							
Our Ref Client Ref	**Country**	**Earliest Priority**	**Entry Date**	**Filing Date Application No.**	**Publication Date + No. Issue Date + Patent No.**	**Status**	**Assignee Inventor**
69074 655-00	USA PRO			08-Feb-2017 62/456,155		Filed	Hadasit Medical Research Services and Development Ltd. Banin Eyal, Idelson Masha, Khaner Hanita, Obolensky Alexey, Reubinoff Benjamin E

Part III – Joint IP

METHODS OF SELECTING RETINAL PIGMENTED EPITHELIAL CELLS							
Our Ref Client Ref	**Country**	**Earliest Priority**	**Entry Date**	**Filing Date Application No.**	**Publication Date + No. Issue Date + Patent No.**	**Status**	**Assignee Inventor**
52753 485-00	USA PRO			31-Jan-2012 61/592,635		Expired	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. REUBINOFF Benjamin Eithan ; YACHIMOVICH-COHEN Nurit ; MATZRAFI Limor
55700 485-01	PCT	31-Jan-2012 61/592,635		29-Jan-2013 IL2013/050077	Publ. Date: 08-Aug-2013 Publ. #: WO2013/114360	Expired	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. REUBINOFF Benjamin Eithan ; YACHIMOVICH-COHEN Nurit ; MATZRAFI Limor
60058 485-02	USA NP	31-Jan-2012 61/592,635	29-Jul-2014	29-Jan-2013 14/375,195	Publ. Date: 08-Jan-2015 Publ. #: 2015-0010922-A1	Allowed	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. REUBINOFF Benjamin Eithan ; YACHIMOVICH-COHEN Nurit ; MATZRAFI Limor
60059 485-03	Canada NP	31-Jan-2012 61/592,635	29-Jul-2014	29-Jan-2013 2,863,172		Pending	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. REUBINOFF Benjamin Eithan ; YACHIMOVICH-COHEN Nurit ; MATZRAFI Limor
60060 485-04	Australia NP	31-Jan-2012 61/592,635	15-Aug-2014	29-Jan-2013 2013216382		Pending	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. REUBINOFF Benjamin Eithan ; YACHIMOVICH-COHEN Nurit ; MATZRAFI Limor
69345 485-05	US DIV	31-Jan-2012 61/592,635	15-Aug-2014	28-Mar-2017 15/470,926		Pending	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. REUBINOFF Benjamin Eithan ; YACHIMOVICH-COHEN Nurit ; MATZRAFI Limor

HIGH THROUGHPUT SCREENING OF AGENTS ON HUMAN PLURIPOTENT-DERIVED DOPAMINERGIC NEURONS							
Our Ref Client Ref	**Country**	**Earliest Priority**	**Entry Date**	**Filing Date Application No.**	**Publication Date + No. Issue Date + Patent No.**	**Status**	**Assignee Inventor**
55925 496-00	USA PRO			13-Feb-2013 61/764,031		Expired	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. MORDECHAI DANIEL Talya ; WISER Ofer ; REUBINOFF Benjamin Eithan
HIGH THROUGHPUT SCREENING OF AGENTS ON DOPAMINERGIC NEURONS							
Our Ref Client Ref	**Country**	**Earliest Priority**	**Entry Date**	**Filing Date Application No.**	**Publication Date + No. Issue Date + Patent No.**	**Status**	**Assignee Inventor**
55931 496-01	USA PRF	13-Feb-2013 61/764,031		18-Mar-2013 61/802,814		Expired	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. MORDECHAI DANIEL Talya ; WISER Ofer ; REUBINOFF Benjamin Eithan
58434 496-02	PCT	13-Feb-2013 61/764,031		12-Feb-2014 IL2014/050149	Publ. Date: 21-Aug-2014 Publ. #: WO2014/125481	Expired	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. MORDECHAI DANIEL Talya ; WISER Ofer ; REUBINOFF Benjamin Eithan
63486 496-03	Europe NP	13-Feb-2013 61/764,031	28-Aug-2015	12-Feb-2014 14751359.2	Publ. Date: 23-Dec-2015 Publ. #: 2956539	Pending	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. MORDECHAI DANIEL Talya ; WISER Ofer ; REUBINOFF Benjamin Eithan
65929 496-06	Hong Kong NP	13-Feb-2013 61/764,031	13-Apr-2016	12-Feb-2014 16104232.2	Publ. Date: 28-Oct-2016 Publ. #: 1216258A	Pending	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. MORDECHAI DANIEL Talya ; WISER Ofer ; REUBINOFF Benjamin Eithan
63487 496-04	USA NP	13-Feb-2013 61/764,031	10-Aug-2015	12-Feb-2014 14/766,784	Publ. Date: 31-Dec-2015 Publ. #: 2015-0377864-A1	Pending	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. MORDECHAI DANIEL Talya ; WISER Ofer ; REUBINOFF Benjamin Eithan
63488 496-05	Israel NP	13-Feb-2013 61/764,031	06-Aug-2015	12-Feb-2014 240415		Pending	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. MORDECHAI DANIEL Talya ; WISER Ofer ; REUBINOFF Benjamin Eithan
66894 496-07	Canada NP	13-Feb-2013 61/764,031	11-Jul-2016	12-Feb-2014 2,936,486		Pending	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. MORDECHAI DANIEL Talya ; WISER Ofer ; REUBINOFF Benjamin Eithan
PREPARATION OF RETINAL PIGMENT EPITHELIUM CELLS							
Our Ref Client Ref	**Country**	**Earliest Priority**	**Entry Date**	**Filing Date Application No.**	**Publication Date + No. Issue Date + Patent No.**	**Status**	**Assignee Inventor**
64082 603-00	USA PRO			26-Oct-2015 62/246,214		Expired	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. REUBINOFF Benjamin Eithan ; SINGER Orna
67196 603-01	PCT	26-Oct-2015 62/246,214		26-Oct-2016 IL2016/051155		Filed	Cell Cure Neurosciences Ltd. ; Hadasit Medical Research Services and Development Ltd. REUBINOFF Benjamin Eithan ; SINGER Orna ; BOHANA-KASHTAN Osnat ; WISER Ofer

Part IV – OCS Funded

METHODS OF TREATING RETINAL DISEASES							
Our Ref Client Ref	**Country**	**Earliest Priority**	**Entry Date**	**Filing Date Application No.**	**Publication Date + No. Issue Date + Patent No.**	**Status**	**Assignee Inventor**
61895 602-03	PCT	30-Dec-2014 62/097,753		30-Apr-2015 IL2015/050456	Publ. Date: 07-Jul-2016 Publ. #: WO2016/108219	Published	Cell Cure Neurosciences Ltd. BANIN Eyal ; REUBINOFF Benjamin Eithan ; BOHANA-KASHTAN Osnat ; NETZER Nir ; IRVING Charles Sherard

Exhibit 21.1

List of Subsidiaries

Subsidiary	BioTime Ownership	Country
AgeX Therapeutics, Inc.	85.4%	USA
Cell Cure Neurosciences Ltd.	98.8%(1)	Israel
ES Cell International Pte. Ltd.	100%	Singapore
LifeMap Sciences, Inc.	81.7%(2)	USA
LifeMap Sciences, Ltd.	(3)	Israel
OrthoCyte Corporation	99.8%	USA
ReCyte Therapeutics, Inc.	94.8%(2)	USA

(1) Includes shares owned by BioTime and ES Cell International Pte Ltd.
(2) Represents shares owned by AgeX Therapeutics, Inc.
(3) LifeMap Sciences, Ltd. is a wholly-owned subsidiary of LifeMap Sciences, Inc.

EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-2 (Registration Nos. 333-128083 and 333-109442), Form S-3 (Registration Nos. 333-166862, 333-167822, 333-174282, 333-182964, 333-183557, 333-187710, 333-188066, 333-201824, 333-209000, 333-217182, and 333-218807), and Form S-8 (Registration Nos. 333-101651, 333-122844, 333-163396, 333-192531, 333-205661, and 333-219204) and related prospectuses of BioTime, Inc. of our reports dated March 15, 2018, with respect to the consolidated financial statements of the Company and the effectiveness of BioTime, Inc. and Subsidiaries' internal control over financial reporting, which appear in this Annual Report on Form 10-K for the year ended December 31, 2017.

/s/ OUM & CO. LLP

San Francisco, California
March 15, 2018

Exhibit 23.2

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-2 (Registration Nos. 333-128083 and 333-109442), Form S-3 (Registration Nos. 333-218807, 333-217182, 333-166862, 333-183557, 333-187710, 333-188066, 333-201824, 333-209000, 333-217182, and 333-218807), and Form S-8 (Registration Nos. 333-219204, 333-205661, 333-101651, 333-122844, 333-163396, 333-192531, 333-205661, and 333-219204) and related prospectuses of BioTime, Inc. of our report dated March 15, 2018, with respect to the financial statements of Asterias Biotherapeutics, Inc., included in this Annual Report on Form 10-K of BioTime, Inc. for the year ended December 31, 2017.

/s/ OUM & CO. LLP

San Francisco, California
March 15, 2018

Exhibit 31

CERTIFICATIONS

I, Michael D. West, certify that:

1. I have reviewed this annual report on Form 10-K of BioTime, Inc.;

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

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

4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rule 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 periodic 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 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 officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

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

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

Date: March 15, 2018

/s/ Michael D. West

Michael D. West Ph.D.
Co-Chief Executive Officer

Exhibit 31

CERTIFICATIONS

I, Aditya Mohanty, certify that:

1. I have reviewed this annual report on Form 10-K of BioTime, Inc.;

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

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

4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rule 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 periodic 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 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 officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

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

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

Date: March 15, 2018

/s/ Aditya Mohanty

Aditya Mohanty
Co-Chief Executive Officer

Exhibit 31

CERTIFICATIONS

I, Russell Skibsted, certify that:

1. I have reviewed this annual report on Form 10-K of BioTime, Inc.;

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

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

4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rule 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 periodic 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 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 officers and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

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

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

Date: March 15, 2018

/s/ Russell Skibsted

Russell Skibsted
Chief Financial Officer

Exhibit 32

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

In connection with the Annual Report on Form 10-K of BioTime, Inc. (the "Company") for the year ended December 31, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we, Michael D. West, Co-Chief Executive Officer, Aditya Mohanty, Co-Chief Executive Officer, and Russell Skibsted, Chief Financial Officer of the Company, certify pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

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

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

Date: March 15, 2018

/s/ Michael D. West
Michael D. West Ph.D.
Co-Chief Executive Officer

/s/ Aditya Mohanty
Aditya Mohanty
Co-Chief Executive Officer

/s/ Russell Skibsted
Russell Skibsted
Chief Financial Officer

Exhibit 99.1

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Stockholders and Board of Directors
Asterias Biotherapeutics, Inc.
Fremont, California

Opinion on the Financial Statements

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

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

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

/s/ OUM & CO. LLP

San Francisco, California
March 15, 2018
We have served as the Company's auditor since 2014.

Item 8. Financial Statements and Supplementary Data

ASTERIAS BIOTHERAPEUTICS, INC.
BALANCE SHEETS
(IN THOUSANDS EXCEPT PAR VALUE AMOUNTS)

	December 31,	
	2017	**2016**
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$ 13,266	$ 19,800
Available-for-sale securities, at fair value	8,329	15,269
Prepaid expenses and other current assets	1,121	1,921
Total current assets	22,716	36,990
NONCURRENT ASSETS		
Intangible assets, net	15,444	18,130
Property, plant and equipment, net	4,543	5,475
Other assets	389	415
TOTAL ASSETS	$ 43,092	$ 61,010
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Amount due to BioTime, Inc.	$ -	$ 288
Accounts payable	401	1,076
Accrued expenses	2,557	2,495
Capital lease liability, current	7	7
Lease liability, current	556	484
Deferred grant income	-	2,185
Total current liabilities	3,521	6,535
LONG-TERM LIABILITIES		
Warrant liability	2,757	8,665
Capital lease liability, noncurrent	14	20
Deferred rent liability	316	266
Lease liability, noncurrent	2,941	3,496
TOTAL LIABILITIES	9,549	18,982
Commitments and contingencies (see Note 8)		
STOCKHOLDERS' EQUITY		
Preferred Stock, $0.0001 par value, authorized 5,000 shares; none issued and outstanding	-	-
Common Stock, $0.0001 par value, authorized 75,000 Series A Common Stock and 75,000 Series B Common Stock; 54,051 and 47,467 shares Series A Common Stock issued and outstanding at December 31, 2017 and 2016, respectively; no Series B Common Stock issued and outstanding at December 31, 2017 and 2016	5	5
Additional paid-in capital	152,136	126,829
Accumulated other comprehensive loss	(6,498)	(1,078)
Accumulated deficit	(112,100)	(83,728)
Total stockholders' equity	33,543	42,028
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 43,092	$ 61,010

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

ASTERIAS BIOTHERAPEUTICS, INC.
STATEMENTS OF OPERATIONS
(IN THOUSANDS, EXCEPT PER SHARE DATA)

	Year Ended December 31,		
	2017	**2016**	**2015**
REVENUES:			
Grant income	$ 3,711	$ 6,572	$ 3,007
Sale of cell lines	-	-	40
License revenue	-	125	-
Royalties from product sales	331	257	535
Total revenues	4,042	6,954	3,582
Cost of sales	(165)	(128)	(268)
Total gross profit	3,877	6,826	3,314
OPERATING EXPENSES:			
Research and development	(26,640)	(25,467)	(17,321)
General and administrative	(10,488)	(15,482)	(7,901)
Total operating expenses	(37,128)	(40,949)	(25,222)
Loss from operations	(33,251)	(34,123)	(21,908)
OTHER INCOME/(EXPENSES):			
Gain/(loss) from change in fair value of warrant liability	5,908	(3,108)	-
Interest expense, net	(465)	(546)	(341)
Other expense, net	(564)	(37)	(6)
Total other income (expenses), net	4,879	(3,691)	(347)
LOSS BEFORE INCOME TAX BENEFIT	(28,372)	(37,814)	(22,255)
Deferred income tax benefit	-	2,325	7,252
NET LOSS	$ (28,372)	$ (35,489)	$ (15,003)
BASIC AND DILUTED NET LOSS PER SHARE	$ (0.56)	$ (0.83)	$ (0.42)
WEIGHTED AVERAGE SHARES OUTSTANDING: BASIC AND DILUTED	50,271	42,934	35,443

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

ASTERIAS BIOTHERAPEUTICS, INC.
STATEMENTS OF COMPREHENSIVE LOSS
(IN THOUSANDS)

	Years Ended December 31,		
	2017	**2016**	**2015**
NET LOSS	$ (28,372)	$ (35,489)	$ (15,003)
Other comprehensive income/(loss):			
Unrealized (loss)/gain on available-for-sale securities, net of tax	(5,927)	(1,512)	937
Reclassification of realized loss on available-for-sale securities, net of taxes	508	-	-
Total other comprehensive income/(loss)	(5,419)	(1,512)	937
COMPREHENSIVE LOSS	$ (33,791)	$ (37,001)	$ (14,066)

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

ASTERIAS BIOTHERAPEUTICS, INC.
STATEMENTS OF STOCKHOLDERS' EQUITY
(IN THOUSANDS)

	Common Stock					
	Shares	Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Income(Loss)	Accumulated Deficit	Stockholders' Equity
Balance as of December 31, 2014	30,902	$ 3	$ 66,367	$ (503)	$ (33,236)	$ 32,631
Stock-based compensation	145	-	3,625	-	-	3,625
Shares retired to pay employee taxes	(24)	-	(98)	-	-	(98)
Unrealized gain on available-for-sale securities, net of taxes	-	-	-	937	-	937
Sale of common stock under at-the-market transactions	686	-	4,839	-	-	4,839
Financing costs to issue common stock	-	-	(665)	-	-	(665)
Issuance of common stock upon exercise of warrants	5,000	1	11,700	-	-	11,701
Common stock issued at Private Placement	1,026	-	4,000	-	-	4,000
Common stock issued in public offering	385	-	1,500	-	-	1,500
Issuance of common stock upon exercise of stock options	12	-	29	-	-	29
OncoCyte common stock received as a dividend from BioTime, net of taxes	-	-	1,117	-	-	1,117
Common stock issued for services	96	-	486	-	-	486
Net loss	-	-	-	-	(15,003)	(15,003)
Balance as of December 31, 2015	38,228	4	92,900	434	(48,239)	45,099
Stock-based compensation	457	-	4,797	-	-	4,797
Shares retired to pay employee taxes	(37)	-	(168)	-	-	(168)
Unrealized loss on available-for-sale securities, net of taxes	-	-	-	(1,512)	-	(1,512)
Sale of common stock under at-the-market transactions	1,812	-	7,969	-	-	7,969
Financing costs for at-the-market sales	-	-	(328)	-	-	(328)
Issuance of common stock upon exercise of stock options	827	-	2,026	-	-	2,026
Issuance of common stock upon exercise of warrants, including fair value of warrants	148	-	1,102	-	-	1,102
Issuance of common stock in public offering	5,889	1	14,014	-	-	14,015
Financing costs of public offering	-	-	(1,275)	-	-	(1,275)
Distribution of warrants to shareholders other than BioTime	-	-	5,285	-	-	5,285
Common stock issued for services	219	-	922	-	-	922
Cross-License and Share Transfer with BioTime, net	(76)	-	(415)	-	-	(415)
Net loss	-	-	-	-	(35,489)	(35,489)
Balance as of December 31, 2016	47,467	5	126,829	(1,078)	(83,728)	42,028
Stock-based compensation	251	-	4,444	-	-	4,444
Unrealized loss on available-for-sale securities, net of taxes	-	-	-	(5,420)	-	(5,420)
Sale of common stock under at-the-market transactions	2,005	-	8,002	-	-	8,002
Financing costs for at-the-market sales	-	-	(238)	-	-	(238)
Issuance of common stock upon exercise of stock options	8	-	18	-	-	18
Costs associated with the extension of warrants	-	-	2,042	-	-	2,042
Issuance of common stock upon exercise of warrants, including fair value of warrants	1	-	5	-	-	5
Issuance of common stock in public offering	4,000	-	10,400	-	-	10,400
Financing costs of public offering	-	-	(517)	-	-	(517)
Common stock issued for services	319	-	1,151	-	-	1,151
Net loss	-	-	-	-	(28,372)	(28,372)
Balance as of December 31, 2017	54,051	$ 5	$ 152,136	$ (6,498)	$ (112,100)	$ 33,543

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

ASTERIAS BIOTHERAPEUTICS, INC.
STATEMENTS OF CASH FLOWS
(IN THOUSANDS)

	Year Ended December 31,		
	2017	**2016**	**2015**
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net loss	$ (28,372)	$ (35,489)	$ (15,003)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization expense	1,110	1,176	564
Stock-based compensation	4,444	4,797	3,625
Amortization of intangible assets	2,686	2,686	2,686
Realized loss on sale of available-for-sale securities	508	-	-
Amortization of prepaid rent	-	-	85
Deferred income tax benefit	-	(2,325)	(7,252)
Common stock issued for services in lieu of cash	1,151	922	486
Gain (loss) from change in fair value of warrant liability	(5,908)	3,108	-
Distribution of Asterias warrants to shareholders other than BioTime	2,042	5,285	-
Loss on disposal of equipment	112	-	-
Changes in operating assets and liabilities:			
Grant receivable	-	-	118
Prepaid expenses and other current assets	13	(887)	(680)
Other assets	846	10	(95)
Accounts payable	(675)	329	(24)
Accrued expenses	62	1,863	584
Deferred rent liability	50	87	85
Deferred grant income	(2,185)	(328)	2,513
Amount due to BioTime	(321)	(242)	(85)
Net cash used in operating activities	(24,437)	(19,008)	(12,393)
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchase of property, plant and equipment, including leasehold improvements	(290)	(894)	(313)
Payments on construction in progress	-	-	(4,279)
Proceeds from the sale of available-for-sale securities	1,012	-	-
Reimbursement (payment) of security deposit, net	-	31	(1)
Net cash provided by/(used in) investing activities	722	(863)	(4,593)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from sale of common shares under at-the-market transactions	8,002	7,969	4,839
Financing costs for at-the-market sales	(238)	(328)	(157)
Proceeds from sale of common shares in public offering	10,400	14,014	5,500
Proceeds allocated to warrants classified as liabilities	-	6,009	-
Proceeds from exercise of warrants	5	651	11,700
Financing costs for sale of common stock in public offering	(517)	(1,275)	(508)
Financing costs allocated to warrants classified as liabilities	-	(550)	-
Proceeds from exercises of stock options	18	2,026	29
Repayment of lease liability and capital lease obligation	(489)	(427)	(1)
Shares retired to pay for employees' taxes	-	(168)	(98)
Reimbursement from landlord on construction in progress	-	567	3,789
Net cash provided by financing activities	17,181	28,488	25,093
NET (DECREASE)/INCREASE IN CASH AND CASH EQUIVALENTS	(6,534)	8,617	8,107
At beginning of year	19,800	11,183	3,076
At end of year	$ 13,266	$ 19,800	$ 11,183
SUPPLEMENTAL SCHEDULE OF NON-CASH FINANCING AND INVESTING ACTIVITIES:			
OncoCyte common stock received as a dividend in kind from BioTime, net of taxes	$ -	$ -	$ 1,117
Landlord receivable	$ -	$ -	$ (189)
Lease liability	$ -	$ -	$ 189
Cross-License and Share Transfer with BioTime Inc., net	$ -	$ 415	$ -

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

1. Organization, Basis of Presentation and Liquidity

Asterias Biotherapeutics, Inc. ("Asterias") was incorporated in Delaware on September 24, 2012. Prior to May 13, 2016, Asterias was a majority-owned and controlled subsidiary of BioTime, Inc. ("BioTime"). As further discussed below, on May 13, 2016, BioTime deconsolidated Asterias' financial statements due to BioTime's loss of control of Asterias as defined by generally accepted accounting principles.

Asterias is a clinical-stage biotechnology company dedicated to developing cell-based therapeutics to treat neurological conditions associated with demyelination and cellular immunotherapies to treat cancer. The Company has industry-leading technology in two cell types, each with broad potential applicability: oligodendrocyte progenitor cells which, as oligodendrocytes, re-myelinate axons within the central nervous system and perform other restorative functions, and antigen presenting dendritic cells which train T-cells in the immune system to attack and destroy solid or liquid tumor cells across multiple types of cancer.

The financial statements and the notes thereto are presented in accordance with accounting principles generally accepted in the U.S. ("GAAP") and with the accounting and reporting requirements to Form 10-K and Article 10 of Regulation S-X of the Securities and Exchange Commission ("SEC").

Prior to May 13, 2016, BioTime consolidated the results of Asterias into BioTime's consolidated results based on BioTime's ability to control Asterias' operating and financial decisions and policies through a majority ownership of Asterias common stock. On May 13, 2016, Asterias completed the sale and the underwriters' exercise of the overallotment for 5,889,480 shares of its common stock and warrants to purchase 2,959,559 shares of its common stock, through an underwritten public offering (the "Asterias Offering") (see Note 6). BioTime did not participate in the Asterias Offering. As a result of the sale of Asterias common stock in the Asterias Offering and the issuance of 708,333 shares of Asterias common stock upon the exercise of certain stock options by a former Asterias executive, BioTime's percentage ownership of the outstanding common stock of Asterias declined to less than 50% on May 13, 2016. Under generally accepted accounting principles, loss of control of a subsidiary is deemed to have occurred when, among other things, a parent company owns less than a majority of the outstanding shares of common stock of the subsidiary, lacks a controlling financial interest in the subsidiary, and is unable to unilaterally control the subsidiary through other means such as having, or having the ability to obtain, a majority of the subsidiary's Board of Directors. BioTime determined that all of these loss of control factors were present for BioTime as of May 13, 2016. Accordingly, BioTime deconsolidated Asterias' financial statements and results of operations from those of BioTime, effective May 13, 2016, in accordance with ASC, 810-10-40-4(c), *Consolidation*.

BioTime continues to allocate expenses such as salaries and payroll related expenses incurred and paid on behalf of Asterias based on the amount of time that particular employees of BioTime devote to Asterias affairs. Other expenses such as legal, accounting, travel, and entertainment expenses are allocated to Asterias to the extent that those expenses are incurred by or on behalf of Asterias. These allocations are made based upon activity-based allocation drivers such as time spent, percentage of square feet of office or laboratory space used, if applicable, and percentage of personnel devoted to Asterias operations or management. These allocated and overhead expenses have decreased during 2017 as Asterias continued to hire its operations and management personnel. Management evaluates the appropriateness of the percentage allocations on a quarterly basis and believes that this basis for allocation is reasonable.

In connection with the services performed by employees of BioTime, or employees of other BioTime commonly controlled and consolidated subsidiaries within the BioTime group of affiliated entities, Asterias has in the past granted stock options to those performing services for Asterias, for which Asterias records stock-based compensation expense in its statements of operations for such services performed in the relevant periods (see Note 9).

Reclassifications – Certain reclassifications have been made to the 2016 financial statements to conform to the 2017 financial statement presentation. These reclassifications had no effect on net earnings or cash flows as previously reported.

Liquidity – Since inception, Asterias has incurred operating losses and has funded its operations primarily through issuance of equity securities, warrants, payments from research grants, and royalties from product sales, and the support from BioTime. At December 31, 2017, Asterias had an accumulated deficit of $112.1 million, working capital of $19.2 million and stockholders' equity of $33.5 million. Asterias has evaluated its projected cash flows and believes that its cash and cash equivalents of $13.3 million and available-for-sale securities of $8.3 million as of December 31, 2017, will be sufficient to fund Asterias' operations through at least twelve months from the issuance date of these financial statements, or at least through March 15, 2019. Some of the clinical trials being conducted by Asterias have historically been funded in part with funds from the $14.3 million grant awarded in 2014 by the California Institute for Regenerative Medicine ("CIRM") and not from cash on hand, and the value of our available-for-sale securities is subject to market risk. If Asterias were unable to obtain future grant funding from CIRM, the value of its available-for-sale securities decreases, or it is unable to obtain future adequate financing for its clinical trials, it may be required to delay, postpone, or cancel its clinical trials or limit the number of clinical trial sites, or otherwise reduce or curtail its operations. Future financings, if necessary, may not be available to Asterias at acceptable terms, or if at all. Sales of additional equity securities would result in the dilution of interests of current shareholders.

2. Summary of Significant Accounting Policies

Use of estimates – The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period with consideration given to materiality. Significant estimates and assumptions used include those related to the going concern assessment of our financial statements, useful lives associated with long-lived assets, including evaluation of asset impairment, loss contingencies, deferred income taxes and tax reserves, including valuation allowances related to deferred income taxes, and assumptions used to value stock-based awards, liability or other equity instruments. Actual results could differ materially from those estimates.

Going concern assessment – At each annual and interim period, Asterias will assess going concern uncertainty to determine if Asterias has sufficient cash and cash equivalents on hand and working capital to operate for a period of at least one year from the date the financial statements are issued or are available to be issued, which is referred to as the "look-forward period" as defined by ASU No. 2014-15. As part of this assessment, based on conditions that are known and reasonably knowable to Asterias, Asterias will consider various scenarios, forecasts, projections, and estimates, and Asterias will make certain key assumptions, including the timing and nature of projected cash expenditures or programs, and its ability to delay or curtail those expenditures or programs, among other factors, if necessary, within the look-forward period in accordance with ASU No. 2014-15.

Revenue recognition – Asterias complies with ASC 605-10 and records revenue when persuasive evidence of an arrangement exists, delivery has occurred, or services have been rendered, the price is fixed or determinable, and collectability is reasonably assured. Grant income is recognized as revenue when the related research and development expenses are incurred. Royalty revenues consist of royalty payments on sales of products under license agreements. Asterias recognizes revenue in the quarter in which the royalty reports are received rather than the quarter in which the sales took place. When Asterias is entitled to receive up-front nonrefundable licensing or similar fees pursuant to agreements under which Asterias has no continuing performance obligations, the fees are recognized as revenues when collection is reasonably assured. When Asterias receives up-front nonrefundable licensing or similar fees pursuant to agreements under which Asterias does have continuing performance obligations, the fees are deferred and amortized ratably over the performance period. If the performance period cannot be reasonably estimated, Asterias amortizes nonrefundable fees over the life of the contract until such time that the performance period can be more reasonably estimated. Milestone payments, if any, related to scientific or technical achievements, subject to substantial uncertainty, are recognized in income when the milestone is accomplished if (a) substantive effort was required to achieve the milestone, (b) the amount of the milestone payment appears reasonably commensurate with the effort expended, and (c) collection of the payment is reasonably assured.

Cash and cash equivalents – Asterias considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents. As of December 31, 2017 and 2016, Asterias had $5.3 million and $13.7 million in money market funds, respectively, considered to be cash equivalents.

Concentrations of credit risk – Financial instruments that potentially subject Asterias to significant concentrations of credit risk consist primarily of cash and cash equivalents. Asterias limits the amount of credit exposure of cash balances by maintaining its accounts in high credit quality financial institutions. Cash equivalent deposits with financial institutions may occasionally exceed the limits of insurance on bank deposits; however, Asterias has not experienced any losses on such accounts.

Comprehensive income/loss – ASC 220, *Comprehensive Income*, requires that an entity's change in equity or net assets during a period from transactions and other events from non-owner sources be reported. Asterias reports unrealized gains and losses on its available-for-sale securities as other comprehensive income/(loss).

Available-for-sale securities, at fair value – Marketable equity and debt securities not classified as held-to-maturity are classified as available-for-sale. Available-for-sale securities are carried at fair value, with the unrealized gains and losses, net of tax, reported in other comprehensive income/(loss). Realized gains and losses and declines in value judged to be other-than-temporary related to equity securities, are included in other income/(expenses), net.

Asterias accounts for the BioTime and OncoCyte shares it holds as available-for-sale securities in accordance with ASC 320-10-25, *Investments-Debt and Equity Securities*, as the shares have a readily determinable fair value quoted on the NYSE American and are held principally for future working capital purposes, as necessary. These shares are measured at fair value and reported as current assets on the balance sheet based on the closing trading price of the security as of the date being presented (see Note 4). Unrealized holding gains and losses are excluded from the statements of operations and reported in equity as part of other comprehensive income/(loss) until realized.

Realized gains and losses on the sale of BioTime shares prior to May 13, 2016, were reclassified out of other comprehensive income/(loss) and included in equity, as an increase or decrease in additional paid-in capital consistent with, and pursuant to, ASC 805-50, *Transactions Between Entities Under Common Control*. Beginning on May 13, 2016, due to the deconsolidation of Asterias, financial statements from BioTime and loss of control experienced by BioTime in Asterias, as discussed in Note 1, realized gains and losses, and declines in value judged to be other-than-temporary related to equity securities, are included in other income/(expense), net. For OncoCyte shares that Asterias holds, realized gains and losses, and declines in value judged to be other-than-temporary related to equity securities, are included in other income/(expense), net.

Asterias reviews various factors in determining whether it should recognize an other-than-temporary impairment charge for its available-for-sale securities, including its intent and ability to hold the investment for a period of time sufficient for any anticipated recovery in market value, and the length of time and extent to which the fair value has been less than its cost basis. Based on consideration of these factors, as of December 31, 2017 and 2016, no other-than-temporary impairment loss was recognized on the available-for-sales securities held on these respective dates.

Property, plant and equipment – Property, plant and equipment includes equipment, fixtures and leasehold improvements stated at cost. Depreciation is calculated using the straight-line method over the period of their estimated useful lives ranging from 36 to 120 months. Leasehold improvements are amortized using the shorter of the useful life or the lease term.

Long-lived intangible assets – Long-lived intangible assets, consisting primarily of acquired patents, patent applications, and licenses to use certain patents are stated at acquired cost, less accumulated amortization. Amortization expense is computed using the straight-line method over the estimated useful lives of the assets, generally over 10 years.

Impairment of long-lived assets – Long-lived assets, including long-lived intangible assets, will be reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be fully recoverable. If an impairment indicator is present, Asterias evaluates recoverability by a comparison of the carrying amount of the assets to future undiscounted net cash flows expected to be generated by the assets. If the assets are impaired, the impairment will be recognized and measured by the amount by which the carrying amount exceeds the estimated fair value of the assets.

Accounting for warrants – Asterias determines the accounting classification of warrants that it issues, as either liability or equity, by first assessing whether the warrants meet liability classification in accordance with ASC 480-10, *Accounting for Certain Financial Instruments with Characteristics of both Liabilities and Equity*, and then in accordance with ASC 815-40, *Accounting for Derivative Financial Instruments Indexed to, and Potentially Settled in, a Company's Own Stock*. Under ASC 480, warrants are considered liability classified if the warrants are mandatorily redeemable, obligate the issuer to settle the warrants or the underlying shares by paying cash or other assets, or warrants that must or may require settlement by issuing variable number of shares. If warrants do not meet liability classification under ASC 480-10, Asterias assesses the requirements under ASC 815-40, which states that contracts that require or may require the issuer to settle the contract for cash are liabilities recorded at fair value, irrespective of the likelihood of the transaction occurring that triggers the net cash settlement feature. If the warrants do not require liability classification under ASC 815-40, in order to conclude equity classification, Asterias assesses whether the warrants are indexed to its common stock and whether the warrants are classified as equity under ASC 815-40 or other applicable GAAP. After all relevant assessments are made, Asterias concludes whether the warrants are classified as liability or equity. Liability classified warrants are required to be accounted for at fair value both on the date of issuance and on subsequent accounting period ending dates, with all changes in fair value after the issuance date recorded in the statements of operations as a gain or loss. Equity classified warrants are accounted for at fair value on the issuance date with no changes in fair value recognized subsequent to the issuance date.

Historically, Asterias has issued warrants that are classified as equity and as a liability (see Note 6).

Research and development – Research and development expenses consist of costs incurred for company-sponsored, collaborative and contracted research and development activities. These costs include direct and research-related overhead expenses including compensation and related benefits including stock-based compensation, consulting fees, research and laboratory fees, rent of research facilities, amortization of intangible assets, and license fees paid to third parties to acquire patents or licenses to use patents and other technology. Asterias expenses research and development costs as incurred. Research and development expenses incurred and reimbursed under grants approximate the grant income recognized in the statements of operations.

General and administrative – General and administrative expenses consist of compensation and related benefits, including stock-based compensation, for executive and corporate personnel; professional and consulting fees; and allocated overhead. General and administrative expenses also include costs allocated from BioTime pursuant to the Shared Facilities and Services Agreement (see Note 9).

Income taxes – As of October 1, 2013, Asterias has filed its own U.S. federal tax returns. Operations prior to that period were included in BioTime's consolidated U.S. federal tax return. For California purposes Asterias' activity through May 12, 2016 was included in BioTime's combined tax return. Activity from May 13, 2016 on will be included in Asterias' separate California income tax return filing due to the deconsolidation of Asterias from BioTime as of that date. Asterias accounts for income taxes in accordance with ASC 740, *Income Taxes*, which prescribes the use of the asset and liability method, whereby deferred tax asset or liability account balances are calculated at the balance sheet date using current tax laws and rates in effect. Valuation allowances are established when necessary to reduce deferred tax assets when it is more likely than not that a portion or all of the deferred tax assets will not be realized. The guidance also prescribes a recognition threshold and a measurement attribute for the financial statement recognition and measurement of tax positions taken or expected to be taken in a tax return. For those benefits to be recognized, a tax position must be more-likely-than-not sustainable upon examination by taxing authorities. For federal purposes Asterias is no longer subject to tax examination for years before 2013. For California purposes Asterias is subject to income tax examinations by tax authorities for all years since inception. Although the statute is closed for purposes of assessing additional income and tax in those years, the taxing authorities may still make adjustments to the net operating loss and credit carryforwards used in open years. Therefore, the statute should be considered open as it relates to the net operating loss and credit carryforwards. Asterias will recognize accrued interest and penalties related to unrecognized tax benefits as income tax expense. No amounts were accrued for the payment of interest and penalties as of December 31, 2017 and 2016.

Stock-based compensation – Asterias accounts for share-based payments in accordance with ASC 718, *Compensation – Stock Compensation*, which require the measurement and recognition of compensation expense for all share-based payment awards made to directors and employees, including employee stock options, based on estimated fair values. Consistent with those guidelines, Asterias utilizes the Black-Scholes-Merton option pricing model. Asterias' determination of fair value of share-based payment awards on the date of grant using that option-pricing model is affected by Asterias' stock price as well as by assumptions regarding a number of complex and subjective variables. These variables include, but are not limited to, Asterias' expected stock price volatility over the term of the awards; the expected term of options granted; and a risk-free rate based on the U.S. Treasury rates in effect during the corresponding expected term of the grant. Expected term is derived from a combination of Asterias own, historical experience, to the extent available, and using the simplified method under SEC *Staff* Accounting *Bulletin* Topic 14, as applicable. Asterias recognizes stock-based compensation on a straight-line basis over the requisite service period. Through January 1, 2017 Asterias recorded stock-based compensation expense net of estimated forfeitures. Upon the adoption of ASU 2016-09, Asterias accounts for forfeitures as they occur.

Asterias also, at times, issues restricted stock or restricted stock units ("RSUs") to its executive officers, employees, and members of its Board of Directors, which are restricted and unvested common shares issued or shares issuable as RSUs vest. Restricted stock and RSU compensation expense is recognized on a straight-line basis over the requisite service period of generally four years, based on the grant-date fair value of the stock. Restricted stock is considered legally issued and outstanding on the grant date, while RSUs are not until RSUs vest. Once the RSUs are vested, equivalent common shares will be issued or issuable to the grantee and therefore the RSUs are not included in total common shares issued and outstanding until vested.

Stock-based compensation expense for non-employee stock-based awards is recognized in accordance with ASC 505-50, *Equity-Based Payments to Non-Employees* ("ASC 505-50"). Stock option awards issued to non-employees, principally consultants and employees of BioTime or employees of BioTime subsidiaries who perform services for Asterias, are accounted for at fair value using the Black-Scholes-Merton option pricing model. Management believes that the fair value of the stock options is more reliably measured than the fair value of services received. Asterias records compensation expense based on the then-current fair values of the stock options at each financial reporting date. Compensation expense recorded during the service period is adjusted in subsequent periods for changes in the fair value of the stock options until the earlier of the date at which the non-employee's performance is complete or a performance commitment is reached, which is generally when the stock option award vests. Compensation expense for non-employee grants is recorded on a straight-line basis in the statements of operations.

Fair value of financial instruments – ASC 820, *Fair Value Measurements*, clarifies that fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability.

ASC 820 requires that the valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. ASC 820 establishes a three-tier value hierarchy, which prioritizes inputs that may be used to measure fair value as follows:

Level 1– Observable inputs that reflect quoted prices for identical assets or liabilities in active markets.

Level 2– Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3– Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The carrying amounts of current assets and current liabilities approximate their fair value because of the relatively short period until they mature or are required to be settled, except for money market funds and the investment in BioTime and OncoCyte shares, which are carried at fair value based on Level 1 inputs, and the warrant liability which is carried at fair value based on Level 3 inputs (see Note 6).

The following table shows the activity in warrants classified as a liability discussed in Note 6 (in thousands):

	Warrant Liability	Warrant Shares
Fair value of warrants issued on May 13, 2016	$ 6,009	2,959
Fair value of warrants exercised on December 2, 2016	(452)	(146)
Increase in fair value of warrants during 2016	3,108	-
Fair value of warrants at December 31, 2016	8,665	2,813
Decrease in fair value of warrants during 2017	(5,908)	-
Fair value of warrants at December 31, 2017	$ 2,757	2,813

Basic and diluted net loss per share – Basic net loss per share is computed by dividing net loss by the weighted-average number of shares of common stock outstanding for the year. Diluted net loss per share reflects the weighted-average number of shares of common stock outstanding plus the potential effect of dilutive securities or contracts which are convertible to common stock, such as options and warrants (using the treasury stock method) and shares issuable in future periods, such as restricted stock or RSU awards, except in cases where the effect would be anti-dilutive.

The computations of basic and diluted net loss per share are as follows (in thousands, except per share data):

	Year Ended December 31,		
	2017	**2016**	**2015**
Net loss	$ (28,372)	$ (35,489)	$ (15,003)
Weighted average common shares outstanding – basic and diluted	50,271	42,934	35,443
Net loss per share – basic and diluted	$ (0.56)	$ (0.83)	$ (0.42)

The following common stock equivalents were excluded from the computation of diluted net loss per share of common stock for the periods presented because including them would have been antidilutive (in thousands):

	Year Ended December 31,		
	2017	**2016**	**2015**
Stock options and restricted stock units	7,066	6,432	5,123
Warrants	2,813	6,552	3,500

Recently Adopted Accounting Pronouncements – The following Accounting Standard(s) were effective during 2017:

In March 2016, the FASB issued ASU 2016-09, *Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting ("ASU 2016-09")*, which simplifies several aspects of the accounting for share-based payment transactions, including the income tax consequences, forfeitures, classification of awards as either equity or liabilities, and classification on the statement of cash flows. Forfeitures are now accounted for as they occur instead of based on the number of awards that were expected to vest. Based on the nature and timing of Asterias equity grants, straight-line expense attribution of stock-based compensation for the entire award and the relatively low forfeiture rate on Asterias experience, the impact of adoption of ASU 2016-09 pertaining to forfeitures was not significant to Asterias' financial statements (see Note 7).

In connection with the adoption of ASU 2016-09, Asterias changed how it accounts for excess tax benefits and deficiencies, if any, and forfeitures, as applicable. All excess tax benefits and tax deficiencies from stock-based compensation awards accounted for under ASC 718 are recognized as an income tax benefit or expense, respectively, in the statements of operations. Prior to the adoption of ASU 2016-09, Asterias recognized excess tax benefits, if any, in additional paid-in capital only if the tax deduction reduced cash income taxes payable and excess tax deficiencies were recognized either as an offset to accumulated excess tax benefits, if any, on Asterias' statements of operations. An excess income tax benefit arises when the tax deduction of a share-based award for income tax purposes exceeds the compensation cost recognized for financial reporting purposes and, a tax deficiency arises when the compensation cost exceeds the tax deduction. Because Asterias has a full valuation allowance, there was no impact to Asterias' statements of operations for any excess tax benefits or deficiencies, as any excess benefit or deficiency would be offset by the change in the valuation allowance (see Note 10). Asterias adopted ASU 2016-09 beginning on January 1, 2017.

Recently Issued Accounting Pronouncements – The following accounting standards, which are not yet effective, are presently being evaluated by Asterias to determine the impact that they might have on its financial statements.

On January 5, 2016, the FASB issued Accounting Standards Update 2016-01, *Financial Instruments–Overall: Recognition and Measurement of Financial Assets and Financial Liabilities* (ASU No. 2016-01). Changes to the current GAAP model primarily affect the accounting for equity investments, financial liabilities under the fair value option, and the presentation and disclosure requirements for financial instruments. In addition, ASU No. 2016-01 clarified guidance related to the valuation allowance assessment when recognizing deferred tax assets resulting from unrealized losses on available-for-sale debt securities. The accounting for other financial instruments, such as loans, investments in debt securities, and financial liabilities is largely unchanged. The more significant amendments are to equity investments in unconsolidated entities.

In accordance with ASU No. 2016-01, all equity investments in unconsolidated entities (other than those accounted for using the equity method of accounting) will generally be measured at fair value through earnings. There will no longer be an available-for-sale classification (changes in fair value reported in other comprehensive income) for equity securities with readily determinable fair values. The classification and measurement guidance will be effective for public business entities in fiscal years beginning after December 15, 2017, including interim periods within those fiscal years. Upon the adoption of ASU No. 2016-01, the Company will record a cumulative-effect adjustment to the balance sheet as of January 1, 2018, the date of adoption. The Company has completed its assessment of the impact from adoption and estimates that an adjustment of approximately $6.5 between accumulated other comprehensive income and retained earnings will be recorded. The adjustment represents the cumulative unrealized holding loss from the date that the securities were acquired through the date of adoption. Refer to Note 4 for discussion regarding Asterias' available-for-sale securities.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*, which requires lessees to recognize assets and liabilities for leases with lease terms greater than twelve months in the statement of financial position. Leases will be classified as either financing or operating, with classification affecting the pattern of expense recognition in the statements of operations. ASU 2016-02 also requires improved disclosures to help users of financial statements better understand the amount, timing and uncertainty of cash flows arising from leases. The update is effective for fiscal years beginning after December 15, 2018, including interim reporting periods within that reporting period. Early adoption is permitted. Although Asterias has not completed its evaluation of the impact of the adoption of ASU 2016-02, Asterias currently holds a significant portion of its operating leases, related to Tenant improvements on Asterias balance sheet (see Note 8), the adoption of ASU 2016-02 is expected to have a material impact to Asterias' financial statements.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers*, which requires an entity to recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. In doing so, companies will need to use more judgment and make more estimates than under today's guidance. These may include identifying performance obligations in the contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation. The ASU will replace most existing revenue recognition guidance in U.S. GAAP when it becomes effective. In August 2015, the FASB issued ASU No. 2015-14, *Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date*, which provided for the adoption of the new standard for fiscal years beginning after December 15, 2017. Accordingly, ASU No. 2014-09 is effective for the Company in the first quarter of 2018. Upon adoption, ASU No. 2014-09 can be applied retrospectively to all periods presented or only to the most current period presented with the cumulative effect of changes reflected in the opening balance of retained earnings in the most current period presented. The FASB has also issued the following standards which clarify ASU No. 2014-09 and have the same effective date as the original standard:

- ASU No. 2016-08, *Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net)*;

- ASU No. 2016-10, *Identifying Performance Obligations and Licensing (Topic 606);*

- ASU No. 2016-11, *Revenue Recognition (Topic 605) and Derivatives and Hedging (Topic 815): Rescission of SEC Guidance Because of Accounting Standards Updates 2014-09 and 2014-16 Pursuant to Staff Announcements at the March 3, 2016, EITF Meeting;*

- ASU No. 2016-12, *Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients; and*
- ASU No. 2016-20, *Revenue from Contracts with Customers (Topic 606): Technical Corrections and Improvements.*

The Company expects to adopt ASU 2014-09 effective January 1, 2018, using the modified retrospective transition method. The Company has completed a quantitative analysis of the impact to its customer contracts in transition at the adoption date and is currently evaluating the effect that the new standard will have on its internal processes, financial statements, and related disclosures.

In the third quarter of 2017, the Company recognized the final CIRM milestone payment under legacy GAAP. Therefore, the CIRM contract falls out of scope and is not considered in transition at adoption. The Company has also reviewed each of its license agreements and has determined that while there will be changes to its policies related primarily to the way that the Company classifies contract consideration, and when variable consideration is deemed probable, the quantitative impact from adoption of the new standard will not be material to the financial statements at adoption.

The Company will continue to monitor additional modifications, clarifications or interpretations undertaken by the FASB that may impact its current conclusions and will expand its analysis to include any new revenue arrangements initiated before adoption. As the Company completes its evaluation of the new standard, new information may arise that could change the Company's understanding of the impact to its financial statements.

In May 2017, the FASB issued ASU 2017-09, *Compensation – Stock Compensation: Scope of Modification Accounting* to clarify the scope of modification accounting for share-based compensation. Under the new guidance, modification accounting is required only if the fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions. The new guidance will reduce diversity in practice and result in fewer changes to the terms of an award being accounted for as modifications. The new authoritative guidance will be effective for public business entities in fiscal years beginning after December 15, 2017. The authoritative guidance will be effective for the Company beginning in fiscal year 2018. The Company does not anticipate that adoption of this guidance will have a material impact on its financial statements.

In February 2018, the FASB issued ASU 2018-02, *Income Statement – Reporting Comprehensive Income (Topic 220)* The amendments ASU 2018-02 allow a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act. Consequently, the amendments eliminate the stranded tax effects resulting from the Tax Cuts and Jobs Act and will improve the usefulness of information reported to financial statement users. The new authoritative guidance will be effective for all entities for fiscal years beginning after December 15, 2018. For public business entities, early adoption is permitted at any time, including interim periods, for reporting periods for which financial statement have not yet been issued. The Company does not currently expect that the impact from the adoption of this guidance to have a material impact on its financial statements, as the adoption of ASU 2016-01 on January 1, 2018 will eliminate the current accumulated other comprehensive loss balance.

3. Balance Sheet Components

Property, plant and equipment, net

As of December 31, 2017 and 2016, property, plant and equipment, net were comprised of the following (in thousands):

	December 31,	
	2017	2016
Computers, machinery and equipment	$ 2,112	$ 2,545
Furniture, fixtures and leasehold improvements	5,275	5,421
	7,387	7,966
Less - accumulated depreciation and amortization	(2,844)	(2,491)
Property, plant and equipment, net	$ 4,543	$ 5,475

Depreciation and amortization expense amounted to $1.1 million, $1.2 million, and $564,000 for the years ended December 31, 2017, 2016 and 2015, respectively.

Accrued expenses

As of December 31, 2017 and 2016, accrued expenses were comprised of the following (in thousands):

	December 31,	
	2017	2016
Accrued compensation and benefits	$ 1,561	$ 1,770
Other accrued expenses	996	725
Accrued expenses	$ 2,557	$ 2,495

On November 2, 2017, we began making adjustments to our operating expenses as appropriate by reducing staffing allocated to non-clinical activities as a part of a broader effort to more closely align operating expenses with the Company's primary goal of continuing to generate clinical data in our clinical stage programs which we believe are the activities that have the greatest potential to create value for shareholders over the next several years. The reduction in staffing affected approximately 25 employees and was completed in the fourth quarter of 2017. The Company recognized approximately $0.5 million of pre-tax restructuring charges in the fourth quarter of 2017 in connection with the reduction in staffing, consisting of severance and other employee termination benefits, substantially all of which are expected to be settled in cash. As of December 31, 2017, $0.3 million in severance and other termination benefits are still due to employees and included in accrued compensation and benefits.

4. Investments in BioTime and OncoCyte Common Stock

Investment in BioTime Common Stock

BioTime common shares (traded on NYSE American under the symbol "BTX") are included at fair value in current assets on the balance sheets as the shares are available for use and could be sold at fair value for working capital purposes. During the year ended December 31, 2017, Asterias sold 371,795 of its BTX shares at a weighted-average price of $2.72. As of December 31, 2017 and 2016, Asterias held 3,481,085 and 3,852,880 BioTime shares, respectively. As of December 31, 2017 and 2016 these shares are valued at $7.5 million and $13.9 million, respectively, based on the closing price on those dates.

Investment in OncoCyte Common Stock

On December 31, 2015, in connection with BioTime's distribution of OncoCyte common stock to BioTime shareholders, on a pro rata basis, Asterias received 192,644 shares of OncoCyte common stock from BioTime as a dividend in kind. On this date, BioTime shareholders, including Asterias, received one share of OncoCyte common stock for every twenty shares of BioTime common stock held. Asterias recorded the fair value of the OncoCyte common stock as contributed capital from BioTime. The OncoCyte common stock distribution resulted in a taxable gain to Asterias of $819,000 (see Note 10).

The OncoCyte shares are included in available-for-sale securities at fair value in current assets in Asterias' balance sheets as the shares are traded on NYSE American (symbol "OCX") and available for working capital purposes. As of December 31, 2017 and 2016, Asterias held 181,756 and 192,644 shares of OncoCyte, respectively. As of December 31, 2017 and 2016, the OncoCyte shares are valued at $0.8 million and $1.4 million, respectively, based on the OncoCyte closing price on those dates.

5. Intangible assets, net

As of December 31, 2017 and, 2016, Asterias had capitalized intangible assets acquired from Geron Corporation, primarily related to patents and other intellectual property rights related to hES cells. These assets are being amortized over their estimated useful lives of 10 years.

Intangible assets, net at December 31, 2017 and, 2016 are shown in the following table (in thousands):

	December 31,	
	2017	2016
Intangible assets	$ 26,860	$ 26,860
Less - accumulated amortization	(11,416)	(8,730)
Intangible assets, net	$ 15,444	$ 18,130

Asterias recognized $2.7 million in amortization expense of intangible assets for the years ended December 31, 2017, 2016 and 2015, respectively.

Amortization of intangible assets for periods subsequent to December 31, 2017 is as follows (in thousands):

Year Ending December 31,	Amortization Expense
2018	2,686
2019	2,686
2020	2,686
2021	2,686
2022	2,686
Thereafter	2,014
Total	$ 15,444

6. Common Stock and Warrants

At December 31, 2017, Asterias had outstanding 54,051,142 Series A Shares and no Series B Shares. At December 31, 2016, Asterias had outstanding 47,466,596 Series A Shares and no Series B Shares. All outstanding Series B Shares were converted into Series A Shares on October 3, 2014.

Common Stock Issuance

On October 16, 2017, Asterias completed the sale, in a registered direct offering, of 4,000,000 shares of its common stock, at an offering price of $2.60 per share, or net proceeds of $9.9 million.

On May 13, 2016, Asterias completed the sale and the underwriters' exercise of the overallotment for 5,889,480 shares of its common stock and warrants to purchase 2,959,559 shares of its common stock, through an underwritten public offering (the "Asterias Offering"), for $3.40 per unit, or net proceeds to Asterias of $18.2 million. Total financing costs were approximately $1.8 million, of which $1.3 million were allocated to the Asterias common stock (see *Warrants classified as liability* below). The net proceeds allocated to the common stock were $12.7 million and the net proceeds allocated to the warrants were $5.5 million. During the year ended December 31, 2016, Asterias received approximately $2.7 million in net proceeds from exercise of stock options and warrants.

During the year ended December 31, 2015, Asterias raised approximately $5.5 million in aggregate gross proceeds from the sale of 1,410,255 shares of common stock at a price of $3.90 per share through an underwritten public offering and a private placement. Broadwood Partners, L.P., British & American Investment Trust PLC and Pedro Lichtinger, related parties, purchased an aggregate of 1,025,640 of the shares.

On April 10, 2015, Asterias entered into an at-the-market (ATM) Sales Agreement with MLV & Co., which is now owned by B. Riley FBR, Inc., pursuant to which Asterias may sell up to a maximum of $20.0 million of its common stock from time to time through the Sales Agent under Asterias' previously filed and currently effective shelf registration statement on Form S-3 (File No. 333-200745). On March 28, 2017, Asterias entered into an amendment to this Sales Agreement. Under the Sales Agreement, as amended, Asterias may issue and sell shares of its Series A common stock having an aggregate offering price of up to an additional $25.0 million. During the fiscal year ended December 31, 2017, Asterias raised approximately $8.0 million in gross proceeds under the ATM from the sale of 2,005,784 shares of its common stock at a weighted average price of $3.99. During the fiscal year ended December 31, 2016, Asterias raised approximately $8.0 million in gross proceeds under the ATM from the sale of 1,811,522 shares of its common stock at a weighted average price of $4.41 per share. During the fiscal year ended December 31, 2015, Asterias raised approximately $4.8 million in gross proceeds from the sale of 685,465 shares of its common stock at a weighted average price of $7.01 per share. As of December 31, 2017, up to approximately $22.7 million of shares of Asterias common stock are available for issuance and sale pursuant to the terms of the ATM Sales Agreement.

During 2017, 2016 and 2015, pursuant to a services agreement with Cell Therapy Catapult Services Limited, Asterias had issued 318,748 shares, 218,520 shares and 94,479 shares, respectively of Asterias Series A common stock with a fair value of $1.2 million, $922,000 and $486,000, respectively to pay for services in lieu of cash (see Note 13).

Asterias issued 148,594 shares of common stock for proceeds of $1.1 million, pursuant to the exercise of warrants in 2016. Asterias issued 5,000,000 shares of common stock pursuant to the exercise of warrants in 2015, for net proceeds of $11.7 million.

Warrants classified as a liability

On May 13, 2016, included in the Asterias Offering, Asterias issued 2,959,559 warrants (the "Asterias Offering Warrants"). The Asterias Offering Warrants have an exercise price $4.37 per share and expire in five years of the issuance date, or May 13, 2021. The Asterias Offering Warrants also contain certain provisions in the event of a Fundamental Transaction, as defined in the warrant agreement governing the Asterias Offering Warrants ("Warrant Agreement"), that Asterias or any successor entity will be required to purchase, at a holder's option, exercisable at any time concurrently with or within thirty days after the consummation of the fundamental transaction, the Asterias Offering Warrants for cash. This cash settlement will be in an amount equal to the value of the unexercised portion of such holder's warrants, determined in accordance with the Black Scholes-Merton option pricing model as specified in the Warrant Agreement.

In accordance with ASC 815-40, *Accounting for Derivative Financial Instruments Indexed to, and Potentially Settled in, a Company's Own Stock*, contracts that require or may require the issuer to settle the contract for cash are liabilities recorded at fair value, irrespective of the likelihood of the transaction occurring that triggers the net cash settlement feature. Changes to the fair value of those liabilities are recorded in the statements of operations. Accordingly, since Asterias may be required to net cash settle the Asterias Offering Warrants in the event of a Fundamental Transaction; the Asterias Offering Warrants are classified as noncurrent liabilities at fair value, with changes in fair value recorded in other income or expense, net, in the statements of operations.

The fair value of the Asterias Offering Warrants at the time of issuance was determined by using a combination of the Binomial Lattice and Black-Scholes-Merton option pricing models under various probability-weighted outcomes which take into consideration the probability of the fundamental transaction and net cash settlement occurring, using the contractual term of the warrants. In applying these models, the fair value is determined by applying Level 3 inputs, as defined by ASC 820; these inputs have included assumptions around the estimated future stock price of Asterias common stock, volatility and the timing of, and varying probabilities that certain events will occur. The Asterias Offering Warrants are revalued each reporting period using the same methodology described above. Changes in any of the key assumptions used to value the Asterias Offering Warrants could materially impact the fair value of the warrants and Asterias' financial statements.

On May 13, 2016, the fair value of the Asterias Offering Warrants was approximately $6.0 million. Because the Asterias Offering Warrants are accounted for as liabilities, the total proceeds from the Asterias Offering were allocated first entirely to the Asterias Offering Warrants' fair value and the remaining residual proceeds to the Asterias common stock. In addition, of the total $1.8 million of the Asterias Offering discounts and expenses incurred, $0.6 million were allocated to the Asterias Offering Warrants, based on the full fair value of the Asterias Offering Warrants and total gross proceeds, and immediately expensed as general and administrative expenses. Total net proceeds allocated to the Asterias Offering Warrants were $5.5 million.

On December 2, 2016, certain investors exercised 146,400 Asterias Offering Warrants for cash proceeds to Asterias of approximately $640,000 (see Note 2).

At December 31, 2017 and 2016, based on valuations performed by Asterias using the methodology described above, the fair value of the Asterias Offering Warrants liability was $2.8 million and $8.7 million, respectively, resulting in Asterias recording an unrealized gain of $5.9 million for the year ended December 31, 2017 and an unrealized loss of $3.1 million for the year ended December 31, 2016, which are included in other income and expenses, net, in the statements of operations.

Warrants classified as equity

On March 30, 2016, Asterias' board of directors declared a distribution of Asterias common stock purchase warrants to all Asterias shareholders other than BioTime, in the ratio of one warrant for every five shares of Asterias common stock owned of record as of the close of business on April 11, 2016. On April 25, 2016, Asterias distributed 3,331,229 warrants (the "Distribution Warrants"). The distribution of the Distribution Warrants was treated as a disproportionate distribution since, in accordance with the terms of the Share Transfer with BioTime, no warrants were distributed to BioTime (see Note 15). The Distribution Warrants are classified as equity, have an exercise price of $5.00 per share, and were set to expire on September 30, 2016. Asterias recorded the Distribution Warrants at a fair value of approximately $3.1 million with a noncash charge to shareholder expense included in general and administrative expenses and a corresponding increase to equity as of March 30, 2016 as the Distribution Warrants were deemed to be issued for accounting purposes on that date.

On September 19, 2016 and February 3, 2017, Asterias extended the expiration date of the Distribution Warrants to February 15, 2017 and September 29, 2017, respectively, no other terms were changed. As a result of the extension of the expiration date of these warrants, Asterias recorded a $2.0 million and $1.7 million noncash charges to shareholder expense included in general and administrative expenses and a corresponding increase to equity for the years ended December 31, 2016 and 2017, respectively. These warrants expired unexercised on September 29, 2017.

In connection with the warrant distribution to shareholders discussed above, 350,000 warrants with an exercise price of $5.00 per share held by Romulus Films, Ltd. were adjusted to become exercisable into 409,152 shares at an exercise price of $4.28 per share (the "Romulus Warrants"). These warrants had an original expiration date of September 30, 2016. On September 19, 2016, Asterias extended the expiration date of the Romulus Warrants to February 15, 2017, no other terms were changed. As a result of the extension of the expiration date of these warrants, Asterias recorded a $0.2 million noncash charge to shareholder expense included in general and administrative expenses and a corresponding increase to equity for the year ended December 31, 2016. On February 3, 2017, Asterias extended the expiration date of the Romulus Warrants to September 29, 2017. These warrants expired unexercised on September 29, 2017.

Warrants Outstanding in 2017, 2016 and 2015

At December 31, 2014, warrants to purchase 8,500,000 common shares with a weighted average exercise price of $3.44 and a weighted average remaining contractual life of 0.99 years were outstanding. At December 31, 2015, warrants to purchase 3,500,000 common shares with an exercise price of $5.00 and a weighted average remaining contractual life of 0.75 years were outstanding (see Note 15).

In February 2016, of the warrants to purchase 3,500,000 shares, 3,150,000 were returned to Asterias by BioTime as part of the Share Transfer between Asterias and BioTime (see Note 9). As of March 20, 2016, these warrants to purchase 3,150,000 shares were retired by Asterias. Asterias warrants outstanding ending December 31, 2016 was 6,552,479. In September 2017, 3,328,033 shares of unexercised Distribution Warrants and 409,152 shares of unexercised Romulus Warrants expired. Asterias warrants outstanding at December 31, 2017 was 2,813,159.

Activity related to equity and liability classified warrants in 2017 and 2016, is presented in the table below (in thousands, except per share and weighted average exercise prices):

	Number of Warrants	Per share exercise price	Weighted Average Exercise Price
Outstanding, December 31, 2015	3,500	$ 5.00	$ 5.00
Issued in 2016	6,350	4.28-5.00	4.69
Exercised in 2016	(148)	4.37-5.00	4.38
Retired in 2016	(3,150)	5.00	5.00
Outstanding, December 31, 2016	6,552	$ 4.28-5.00	$ 4.68
Expired in 2017	(3,738)	5.00	5.00
Exercised in 2017	(1)	5.00	5.00
Outstanding, December 31, 2017	2,813	$ 4.37	$ 4.37

7. Equity Incentive Plan

During March 2013, Asterias' Board of Directors approved an Equity Incentive Plan (the "Plan") under which Asterias has reserved 4,500,000 shares of common stock for the grant of stock options or the sale of restricted stock. Initially, Asterias issued Series B Shares under the Plan. Since the date on which all of the outstanding Series B Shares were converted into Series A Shares, Asterias has issued Series A Shares under the Plan. The Plan also permits Asterias to issue such other securities as its Board of Directors or the Compensation Committee administering the Plan may determine. Asterias' stockholders approved the Plan in September 2013.

During May 2015, Asterias' Board of Directors approved an amendment to increase the number shares authorized for issuance under the Plan by 3,500,000 shares. This amendment was approved by the shareholders at the 2015 annual meeting of shareholders held on July 9, 2015.

During May 2016, Asterias' Board of Directors approved an amendment to increase the number of shares authorized for issuance under the Plan by 3,000,000 shares. This amendment was approved by the shareholders at the 2016 annual meeting of shareholders held on June 9, 2016.

During May 2017, Asterias' Board of Directors approved an amendment to increase the number of shares authorized for issuance under the Plan by 2,500,000 shares. This amendment was approved by the shareholders at the 2017 annual meeting of shareholders held on June 14, 2017.

No options may be granted under the Plan more than ten years after the date upon which the Plan was adopted by the Board of Directors, and no options granted under the Plan may be exercised after the expiration of ten years from the date of grant. Under the Plan, options to purchase common stock may be granted to employees, directors and certain consultants at prices not less than the fair market value at date of grant, subject to certain limited exceptions for options granted in substitution of other options. Options may be fully exercisable immediately, or may be exercisable according to a schedule or conditions specified by the Board of Directors or the Compensation Committee. The Plan also permits Asterias to award restricted stock for services rendered or to sell common stock to employees, subject to vesting provisions under restricted stock agreements that provide for forfeiture of unvested shares upon the occurrence of specified events under a restricted stock award agreement. Asterias may permit employees or consultants, but not officers or directors, who purchase stock under restricted stock purchase agreements, to pay for their shares by delivering a promissory note that is secured by a pledge of their shares.

Asterias may also grant stock appreciation rights ("SARs") and hypothetical units issued with reference to Asterias common stock (restricted stock units or "RSUs") under the Plan. A SAR is the right to receive, upon exercise, an amount payable in cash or shares or a combination of shares and cash, as determined by the Board of Directors or the Compensation Committee, equal to the number of shares subject to the SAR that is being exercised multiplied by the excess of (a) the fair market value of a share of Asterias common stock on the date the SAR is exercised, over (b) the exercise price specified in the SAR Award agreement.

The terms and conditions of a grant of RSUs is determined by the Board of Directors or Compensation Committee. No shares of stock will be issued at the time a RSU is granted, and Asterias will not be required to set aside a fund for the payment of any such award. A recipient of RSUs will have no voting rights with respect to the Restricted Stock Units. Upon the expiration of the restrictions applicable to a RSU, Asterias will either issue to the recipient, without charge, one share of common stock per RSU or cash in an amount equal to the fair market value of one share of common stock.

Stock Options

As of December 31, 2017, Asterias had outstanding to certain officers, employees, and directors, options to purchase a total of 6,375,828 shares of common stock at a weighted average exercise price of $3.31 per share and 690,000 restricted stock/RSUs.

The following table summarizes the stock option activity related to shares of common stock under the Company's Option Plan:

	Number of Options Outstanding	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (Years)	Aggregate Intrinsic Value (in thousands)
Options outstanding at December 31, 2014	3,101	$ 2.42	5.64	$ 2,724
Options granted	2,000	4.33		
Options exercised	(12)	2.34		
Options forfeited/cancelled	(14)	3.45		
Options outstanding at December 31, 2015	5,075	$ 3.17	6.37	$ 4,835
Options granted	2,975	3.56		
Options exercised	(827)	2.45		
Options forfeited/cancelled	(991)	3.86		
Options outstanding at December 31, 2016	6,232	$ 3.34	6.96	$ 8,183
Options granted	1,690	3.57		
Options exercised	(8)	2.34		
Options forfeited/cancelled	(1,538)	3.72		
Options outstanding at December 31, 2017	6,376	$ 3.31	6.01	$ -
Options vested and expected to vest at December 31, 2017	6,376	$ 3.31	6.01	$ -
Options exercisable at December 31, 2017	4,219	$ 3.17	4.61	$ -

The aggregate intrinsic value represents the difference between the exercise price of the awards and the Company's fair value per share of $2.25, $4.60 and $3.93 as of December 31, 2017, 2016, and 2015, respectively.

Additional information regarding the Company's outstanding stock options and vested and exercisable stock options is summarized below:

	As of December 31, 2017				
	Options Outstanding			Options Exercisable	
Exercise Prices	Number of Shares	Weighted-Average Remaining Contractual Life (Years)	Weighted-Average Exercise Price	Number of shares	Weighted-Average Exercise Price per Share
$2.34 - $3.60	2,794	4.09	$ 2.58	2,238	$ 2.47
$3.64 - $6.17	3,478	7.69	$ 3.82	1,879	$ 3.85
$6.22 - $6.25	104	1.69	$ 6.23	102	$ 6.23
	6,376	6.01	$ 3.31	4,219	$ 3.17

Restricted Stock and Restricted Stock Units

The following table summarizes the restricted stock award and restricted stock unit activity under the Company's Option Plan:

Restricted Stock Award/Unit	Number of RSUs Outstanding	Weighted Average Grant Date Fair Value	Weighted Average Remaining Contractual Life (Years)	Aggregate Intrinsic Value (in thousands)
RSUs outstanding at December 31, 2014	100	$ 3.64	0.23	$ 324
RSUs granted	194	2.67		
RSUs vested	(245)	1.58		
RSUs canceled	(1)	2.62		
RSUs outstanding at December 31, 2015	48	2.67	.25	114
RSAs/RSUs granted	515	3.54		
RSAs/RSUs vested	(360)	3.51		
RSUs canceled	(3)	3.49		
RSUs outstanding at December 31, 2016	200	$ 3.39	1.22	$ 380
RSUs granted	1,007	3.25		
RSAs/RSUs vested	(351)	3.53		
RSUs canceled	(166)	3.58		
RSUs outstanding at December 31, 2017	690	$ 3.06	2.31	1,553
RSUs vested and expected to vest at December 31, 2017	690	$ 3.06	2.31	1,553

The aggregate intrinsic value for RSUs represents the Company's fair market value per share of the awards and the Company's fair value per share of $2.25, $4.60, and $3.93 as of December 31, 2017, 2016, and 2015, respectively for the total number of underlying RSUs.

Stock-Based Compensation Expense

The weighted-average estimated fair value of stock options granted during the years ended December 31, 2017, 2016 and 2015 was $3.57, $3.56, and $4.33 per share respectively, using the Black-Scholes-Merton option pricing model with the following weighted-average assumptions:

	Years Ended December 31,		
	2017	**2016**	**2015**
Expected life (in years)	5.76	5.88	3.41
Risk-free interest rates	1.89%	1.33%	1.01%
Volatility	74.64%	75.6%	34.67%
Dividend yield	0%	0%	0%

The risk-free rate is based on the rates in effect at the time of grant for zero coupon U.S. Treasury notes with maturities approximately equal to each grant's expected life. A dividend yield of zero is applied since Asterias has not historically paid dividends and does not expect to pay dividends in the foreseeable future. The expected volatility is based upon the volatility of Asterias' own trading stock and of a group of publicly traded industry peer companies. The expected term of options granted is derived from a combination of Asterias historical experience, to the extent available, and using the simplified method under SEC *Staff Accounting Bulletin* Topic 14.

Prior to the adoption of ASU 2016-09 in 2017 stock-based compensation expense was recognized based on awards that are ultimately expected to vest, and as a result, the amount has been reduced by estimated forfeitures. Forfeitures were estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differed from those estimates. Forfeitures were estimated based on Asterias' historical experience and future expectations. Subsequent to the adoption of ASU 2016-09 on January 1, 2017, forfeitures are accounted for as they occur.

The determination of stock-based compensation is inherently uncertain and subjective and involves the application of valuation models and assumptions requiring the use of judgment. If Asterias had made different assumptions, its stock-based compensation expense, and net loss for years ended December 31, 2017, 2016 and 2015, may have been significantly different.

Asterias does not recognize deferred income taxes for incentive stock option compensation expense, and records a tax deduction only when a disqualified disposition has occurred.

Operating expenses include stock-based compensation expense as follows (in thousands):

	Year Ended December 31,		
	2017	**2016**	**2015**
Research and development	$ 2,469	$ 2,655	$ 1,604
General and administrative	1,975	2,142	2,021
Total stock-based compensation expense	$ 4,444	$ 4,797	$ 3,625

As of December 31, 2017, unrecognized compensation expense related to stock options and RSUs was $4.8 million and $1.7 million, respectively with a weighted-average remaining amortization period of 2.75 years and 2.31 years, respectively.

Common Stock Reserved for Future Issuance

The Company had the following shares of common stock reserved for future issuance under the Equity Incentive Plan:

	As of December 31,	
	2017	**2016**
Equity Incentive Plan:		
Common stock subject to options outstanding	6,376	6,232
RSUs outstanding	690	200
Shares available for future grants	2,782	2,115
Common stock reserved for future issuances	9,848	8,547

8. Commitments and Contingencies

Development and Manufacturing Services Agreement

On August 3, 2016, Asterias entered into a Development and Manufacturing Services Agreement (the "Services Agreement") with Cognate BioServices, Inc. ("Cognate"), a fully-integrated contract bioservices organization providing development and current Good Manufacturing Practice ("cGMP") manufacturing services to companies and institutions engaged in the development of cell-based products.

Under the Services Agreement, Cognate is performing under an Initial Statement of Work process development studies in support of Asterias' clinical and commercial development activities of AST-VAC1 and production and manufacturing services of AST-VAC1 under cGMP under the Second Statement of Work. In consideration for the process development services set forth in the Initial Statement of Work, Asterias agreed to make aggregate payments of up to approximately $1.7 million in fees over the term of the Initial Statement of Work and pay for additional pass through costs for materials and equipment estimated by management to be approximately $0.5 million. In consideration of the production and manufacturing services set forth in the Second Statement of Work, once the services under the Initial Statement of Work are completed and if Asterias receives FDA concurrence on the clinical protocol for an AST-VAC1 trial, then Asterias will make an initial start-up payment, a monthly payment for dedicated manufacturing capacity, and certain other manufacturing fees.

On August 16, 2017, the Company amended SOW 1 ("Amended SOW 1") and entered into a Statement of Work 1.5 ("SOW 1.5") with Cognate to modify the timing of certain process development studies being performed by Cognate under the Services Agreement. Under Amended SOW 1 and SOW 1.5, Cognate will perform certain process development studies initially contemplated by SOW 1 under SOW 1.5 after Cognate has completed the activities under Amended SOW 1 and the Company provides written notice to commence the activities under SOW 1.5.

The Services Agreement will expire on the later of (a) August 3, 2019; or (b) the completion of all services contracted for by the parties in the Statements of Work under the Services Agreement prior to August 3, 2019. The term of the Services Agreement and any then pending Statements of Work thereunder may be extended by Asterias continuously for additional two-year periods upon written notice to Cognate with at least thirty days prior to the expiration of the then-current term.

The Services Agreement provides certain termination rights to each party and customary provisions relating to indemnity, confidentiality and other matters. Asterias incurred $1.1 million and $574,000 of expenses payable to Cognate pursuant to the Services Agreement for the years ended December 31, 2017 and 2016.

Fremont Lease

On December 30, 2013, Asterias entered into a lease for an office and research facility located in Fremont, California, consisting of an existing building with approximately 44,000 square feet of space. The building is being used by Asterias as a combined office, laboratory and production facility that can be used to produce hES and related products under current good manufacturing procedures. Asterias completed the tenant improvements in November 2015, which cost approximately $4.9 million, of which the maximum of $4.4 million was paid to Asterias by the landlord. Asterias placed the asset into service in November 2015 and is amortizing the leasehold improvements and the landlord liability over the remaining lease term through September 30, 2022.

As of December 31, 2017 and 2016, the landlord liability was $3.5 million and $4.0 million, respectively and the deferred rent liability was $316,000 and $266,000, respectively.

Beginning on October 1, 2016, base rent increased to $105,000 per month and will increase by approximately 3% annually on every October 1 thereafter. On October 1, 2017, the base rent increased to $108,000 per month.

In addition to monthly base rent, Asterias will pay all real estate taxes, insurance and the cost of maintenance, repair and replacement of the leased premises. During the first 15 months of the lease term, Asterias paid only 50% of the real estate taxes assessed on the premises. Beginning January 1, 2016, Asterias will pay 100% of the taxes levied on the excess assessed valuation.

Asterias is considered the owner of the asset for accounting purposes only under build-to-suit accounting under ASC 840-40-55, *Accounting for Leases*, *Sale-leaseback transactions*, as Asterias, among other things, has the primary obligation to pay for construction costs and Asterias will retain exclusive use of the building for its office and research facility requirements after construction is completed. In addition, the lease does not qualify for sale-leaseback accounting due to Asterias' significant continuing involvement with the facility that Asterias considers to be other than a normal leaseback as defined by GAAP. In accordance with this guidance, amounts previously expended by Asterias for construction would continue to be reported as construction in progress in Asterias' financial statements, and the landlord reimbursement proceeds received, including amounts earned by Asterias but not yet paid by the landlord at period end, are reported as a lease liability. The property was placed in service in November 2015 and Asterias commenced depreciating the property. Lease payments allocated to the landlord liability are accounted for as debt service payments on that liability using the finance method of accounting. As of December 31, 2015, Asterias had incurred $4.9 million of construction costs included in property, plant and equipment (see Note 3), of which $4.4 million was the lease liability included in long term liabilities at December 31, 2015. The lease liability is being amortized using the effective interest method.

Total rent expense for all rented facilities for the years ended December 31, 2017, 2016, and 2015 was $0.4 million, $0.5 million, and $1.0 million, respectively.

Future minimum annual lease payments, including the lease liability, under the Fremont Lease for the years ending after December 31, 2017 are as follows (in thousands):

Year Ending December 31,	Minimum Lease Payments
2018	$ 1,308
2019	1,346
2020	1,389
2021	1,431
2022	1,097
Total	$ 6,571

Litigation – General

Asterias is subject to various claims and contingencies in the ordinary course of its business, including those related to litigation, business transactions, employee-related matters, and others. When Asterias is aware of a claim or potential claim, it assesses the likelihood of any loss or exposure. If it is probable that a loss will result and an amount that can be reasonably estimated, Asterias will record a liability for the loss. If the loss is not probable or the amount of the loss cannot be reasonably estimated, Asterias discloses the claim if the likelihood of a potential loss is reasonably possible and the amount involved could be material. Asterias is not aware of any claims likely to have a material adverse effect on its financial condition or results of operations.

Employment Contracts

Asterias has entered into employment contracts with certain executive officers. Under the provisions of the contracts, Asterias may be required to incur severance obligations for matters relating to changes in control, as defined and involuntary terminations. In 2016, Asterias paid $309,000 in severance to two former executives in accordance with their respective separation agreements.

At December 31, 2017, total potential severance obligations in connection with the termination of employment contracts approximated $1.3 million for termination without cause and $2.0 million for termination due to a change in control.

Indemnification

In the normal course of business, Asterias may provide indemnifications of varying scope under Asterias' agreements with its directors and executive employees or other companies or consultants, typically Asterias' clinical research organizations, investigators, clinical sites, suppliers and others. Pursuant to these agreements, Asterias will generally agree to indemnify, hold harmless, and reimburse the indemnified parties for losses and expenses suffered or incurred by the indemnified parties arising from claims of third parties in connection with the use or testing of Asterias' products and services. Indemnification provisions could also cover third-party infringement claims with respect to patent rights, copyrights, or other intellectual property pertaining to Asterias products and services. The term of these indemnification agreements will generally continue in effect after the termination or expiration of the particular research, development, services, or license agreement to which they relate. The potential future payments Asterias could be required to make under these indemnification agreements will generally not be subject to any specified maximum amount. Historically, Asterias has not been subject to any claims or demands for indemnification. Asterias maintains various liability insurance policies that limit Asterias' exposure. As a result, Asterias believes the fair value of these indemnification agreements is minimal. Accordingly, Asterias has not recorded any liabilities for these agreements as of December 31, 2017 and 2016.

9. Shared Facilities and Service Agreement

On April 1, 2013, Asterias and BioTime executed a Shared Facilities and Services Agreement ("Shared Facilities Agreement"). Under the terms of the Shared Facilities Agreement, BioTime will allow Asterias to use its premises and equipment located at Alameda, California for the sole purpose of conducting business. BioTime will provide basic accounting, billing, bookkeeping, payroll, treasury, collection of accounts receivable (excluding the institution of legal proceedings or taking of any other action to collect accounts receivable), payment of accounts payable, and other similar administrative services to Asterias. BioTime may also provide the services of attorneys, accountants, and other professionals who may also provide professional services to BioTime and its other subsidiaries. BioTime will also provide Asterias with the services of its laboratory and research personnel, including BioTime employees and contractors, for the performance of research and development work for Asterias at BioTime's premises.

BioTime will charge Asterias a fee for the services and usage of facilities, equipment, and supplies aforementioned. For each billing period, BioTime will equitably prorate and allocate its employee costs, equipment costs, insurance costs, lease costs, professional costs, software costs, supply costs, and utilities costs, between BioTime and Asterias based upon actual documented use and cost by or for Asterias or upon proportionate usage by BioTime and Asterias, as reasonably estimated by BioTime. Asterias shall pay 105% of the allocated costs (the "Use Fee"). The allocated cost of BioTime employees and contractors who provide services will be based upon records maintained of the number of hours of such personnel devoted to the performance of services.

The Use Fee will be determined and invoiced to Asterias on a quarterly basis for each calendar quarter of each calendar year. If the Shared Facilities Agreement terminates prior to the last day of a billing period, the Use Fee will be determined for the number of days in the billing period elapsed prior to the termination of the Shared Facilities Agreement. Each invoice will be payable in full by Asterias within 30 days after receipt. Any invoice or portion thereof not paid in full when due will bear interest at the rate of 15% per annum until paid, unless the failure to make a payment is due to any inaction or delay in making a payment by BioTime employees from Asterias funds available for such purpose, rather than from the unavailability of sufficient funds legally available for payment or from an act, omission, or delay by any employee or agent of Asterias.

In addition to the Use Fees, Asterias will reimburse BioTime for any out of pocket costs incurred by BioTime for the purchase of office supplies, laboratory supplies, and other goods and materials and services for the account or use of Asterias, provided that invoices documenting such costs are delivered to Asterias with each invoice for the Use Fee. Furthermore, BioTime will have no obligation to purchase or acquire any office supplies or other goods and materials or any services for Asterias, and if any such supplies, goods, materials or services are obtained for Asterias, BioTime may arrange for the suppliers thereof to invoice Asterias directly.

Asterias in turn may charge BioTime or any Other Subsidiary for similar services provided by Asterias at the same rate and terms as aforementioned. "Other Subsidiary" means a subsidiary of BioTime other than Asterias and other than a subsidiary of Asterias.

The Shared Facilities Agreement's term ended on December 31, 2017 but the Shared Facilities Agreement was automatically renewed for an additional year and will expire on December 31, 2018. Under the Shared Facilities Agreement, the term of the Shared Facilities Agreement will automatically be renewed and the termination date will be extended for an additional year each year, unless either party gives the other party written notice stating that the Shared Facilities Agreement will terminate on December 31 of that year.

General and administrative expenses include costs allocated from BioTime pursuant to the Shared Facilities Agreement. BioTime allocated $129,000, $265,000, and $282,000, of general overhead expenses to Asterias during the years ended December 31, 2017, 2016 and 2015, respectively. At December 31, 2017 the company had a receivable due from BioTime of $33,000. As of December 31, 2016, Asterias had a $288,000 payable to BioTime under the Shared Facilities Agreement.

10. Income Taxes

The primary components of the deferred tax assets and liabilities at December 31, 2017 and 2016 were as follows (in thousands):

	December 31,	
	2017	**2016**
Deferred tax assets:		
Net operating loss carryforwards	$ 15,110	$ 16,844
Research and development credits	5,643	2,395
Stock based compensation and other	2,130	2,597
Valuation allowance	(17,691)	(8,081)
Total deferred tax assets	5,192	13,755
Deferred tax liabilities:		
Patents and licenses	(3,488)	(7,564)
Securities held as available-for-sale	(1,704)	(6,191)
Total deferred tax liabilities	(5,192)	(13,755)
Net deferred tax liabilities	$ -	$ -

Income taxes differed from the amounts computed by applying the U.S. federal income tax of 34% to pretax losses from operations as a result of the following:

	Years Ended December 31,	
	2017	**2016**
Computed tax benefit at federal statutory rate	34%	34%
Permanent differences	3%	(10%)
State tax benefit, net of effect on federal income taxes	5%	(3%)
Change in valuation allowance	(29%)	(16%)
Research and development credits	7%	1%
Tax reform – tax rate change	(20%)	-
	-%	6%

As of December 31, 2017, Asterias has net operating loss carryforwards of approximately $62.3 million and $29.1 million, respectively, for federal and California tax purposes, which expire between 2032 and 2037 for federal and between 2033 and 2037 for California. In addition, as of December 31, 2017, Asterias has federal and California research tax credit carry forwards of $4.1 million and $2.0 million, respectively. The federal tax credits expire between 2033 and 2036, while the state tax credits have no expiration date.

No federal and state tax provision or benefit was recorded for year ended December 31, 2017. A deferred income tax benefit of approximately $2.3 million was recorded for the year ended December 31, 2016 related to federal taxes. No state tax provision or benefit was recorded for year ended December 31, 2016. A deferred income tax benefit of approximately $7.3 million was recorded for the year ended December 31, 2015, of which approximately $7.4 million was related to federal taxes and $0.1 million was related to state taxes.

Asterias established deferred tax liabilities primarily related to its acquisition of certain intellectual property and available-for-sale securities held in BioTime and OncoCyte common stock. Asterias has established a valuation allowance for California deferred tax assets as of December 31, 2015. In assessing the realization of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon future generation of taxable income during the periods in which temporary differences representing net future deductible amounts become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. After consideration of all the information available, management believes that significant uncertainty exists with respect to future realization of the deferred tax assets and has therefore established a full valuation allowance for federal and California deferred tax assets as of December 31, 2016 and 2017. For the years ended December 31, 2017 and 2016, the change in the valuation allowance was approximately $9.6 million and $5.2 million, respectively.

On February 16, 2016, Asterias entered into a Cross-License Agreement and Share Transfer Agreement with BioTime and BioTime's wholly owned subsidiary ES Cell International Pte. Ltd. ("ESI"). The transfer of assets was a taxable transaction to Asterias generating a taxable gain of approximately $3.1 million. Asterias has sufficient current year losses from operations in 2016 to offset the entire gain resulting in no income taxes due. As the transfer of assets and the resulting taxable gain is due to a direct effect of transactions between Asterias and its then parent company, BioTime, Asterias recorded the tax effect of this gain through equity with a corresponding release of the valuation allowance, in accordance with ASC 740-20-45-11(g), during the year ended December 31, 2016.

On December 31, 2015, BioTime distributed 4.7 million shares of OncoCyte common stock to its shareholders, including Asterias, on a pro rata basis as a dividend in kind. As part of the distribution of OncoCyte common stock, Asterias, as it also holds BioTime common stock, received 192,644 shares of OncoCyte common stock as contributed capital from BioTime resulting in a taxable gain to Asterias of $819,000. Asterias has sufficient current year losses from operations in 2015 to offset the entire taxable gain resulting in no income taxes due. As the distribution was treated as contributed capital for financial reporting purposes, Asterias recorded the tax effect of this gain through equity consistent with BioTime's treatment of the distribution in accordance with ASC 740-20-45-11(g).

Internal Revenue Code Section 382 places a limitation ("Section 382 Limitation") on the amount of taxable income that can be offset by net operating loss carryforwards after an ownership change (generally greater than 50% change in ownership within a three-year-period) of a loss corporation. California has similar rules. Generally, after an ownership change, a loss corporation cannot deduct net operating loss carryforwards in excess of the Section 382 Limitation. Similar rules exist under Internal Revenue Code Section 383 that may limit the use of credits in the future. The future utilization of the net operating loss carryforwards and tax credits to offset future taxable income may be subject to an annual limitation, as a result of ownership changes that may have occurred previously of that could occur in the future. A Section 382 analysis to determine the limitation of the net operating loss carryforwards has not been performed.

On December 22, 2017 the Tax Cuts and Jobs Act (the "Act") was signed into law. Among other provisions, the Act reduces the Federal statutory corporate income tax rate from 34% to 21%. This rate reduction has a significant impact on our provisions for income taxes for periods beginning after December 31, 2017, including a one-time impact resulting from the revaluation of our deferred tax assets and liabilities to reflect the new lower rate. However, we still maintain a full valuation allowance against our deferred taxes. Thus, the impact of the change is fully offset by our valuation allowance.

As of December 31, 2017, Asterias had no unrecognized tax benefits and has recorded no liability related to uncertain tax positions. Asterias did not record a change in its unrecorded tax benefits during the year ended December 31, 2017, and expects no change in its unrecorded tax benefits in the next 12 months.

Asterias files tax returns in the U.S. federal and state jurisdictions and is subject to examination by tax authorities. Asterias is not currently under examination by income tax authorities in federal or state. Due to net operating loss and research credit carryforwards, substantially all of the Company's tax years, from 2012 through 2017, remain open to U.S. federal and state tax examinations.

11. Segment Information

Operating segments are defined as components of an enterprise that engage in business activities for which separate financial information is available and evaluated by the chief operating decision maker in deciding how to allocate resources and assess performance. Asterias' executive management team represents its chief operating decision maker. The executive management team reviews financial information presented on a consolidated basis for purposes of allocating resources and evaluating financial performance and there are no managers who are held accountable for levels or components below the consolidated unit level. Asterias executive management views Asterias' operations as one segment.

12. Selected Quarterly Financial Information (unaudited) (in thousands)

Asterias has derived this data from the unaudited interim financial statements that, in Asterias' opinion, have been prepared on substantially the same basis as the audited financial statements contained in this report and include all normal recurring adjustments necessary for a fair presentation of the financial information for the periods presented. These unaudited quarterly results should be read in conjunction with the financial statements and notes thereto included in this report. The operating results in any quarter are not necessarily indicative of the results that may be expected for any future period.

Year Ended December 31, 2017	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Revenues, net	$ 1,958	$ 298	$ 1,607	$ 14
Operating expenses	11,065	8,831	8,670	8,562
Loss from operations before deferred tax benefits	(6,287)	(8,728)	(6,809)	(6,548)
Basic and diluted net loss per share	(0.13)	(0.18)	(0.14)	(0.12)
Year Ended December 31, 2016				
Revenues, net	$ 1,541	$ 1,526	$ 2,017	$ 1,742
Operating expenses	12,633	8,600	9,442	10,274
Loss from operations before deferred tax benefits	(11,239)	(5,610)	(11,550)	(9,415)
Basic and diluted net loss per share	(0.27)	(0.12)	(0.24)	(0.20)

13. License and Royalty Obligations

Services Agreement with Cell Therapy Catapult Services Limited

In October 2015, Asterias entered into a Services Agreement (the "Services Agreement") with Cell Therapy Catapult Services Limited ("Catapult"), a research organization specializing in the development of technologies which speed the growth of the cell and gene therapy industry. Under the Services Agreement, Catapult will license to Asterias, certain background intellectual property and will develop a scalable manufacturing and differentiation process for Asterias' human embryonic stem cell derived dendritic cell cancer vaccine development program. In consideration for the license and Catapult's performance of services, Asterias agreed to make aggregate payments of up to GBP £4,350,000 over the next five years (approximately $5.9 million based on the foreign currency exchange rate on December 31, 2017). At the option of Asterias, up to GBP £3,600,000 (approximately $4.9 million based on the foreign currency exchange rate on December 31, 2017) of such payments may be settled in shares of Asterias Series A Common Stock instead of cash. If Asterias elects to pay for the services in stock and Catapult is unable to sell the stock in the market within 60 days of issuance, after reasonable and diligent efforts through its broker, Catapult may request that the unsold portion of the stock payment, if any, be paid by Asterias in cash at a value equal to approximately 91% of the total amount that was issued in stock. This right by Catapult to put the unsold shares back to Asterias for cash expires the earlier to occur of the sale of the stock in the market or after 60 days of issuance. As of December 31, 2017, we have incurred costs since commencement of the Services Agreement of GBP £3,200,000 under the Services Agreement.

The Services Agreement may be terminated by Asterias for any reason upon 60 days prior written notice. Catapult may terminate the Services Agreement on 60 days prior written notice if it encounters a technical issue that would prevent it from completing the services at all or without obtaining additional resources, or if the estimated time and cost of completing the services will be exceeded and Catapult and Asterias do not reach agreement on revised time and cost terms. Catapult may terminate the Services Agreement in the event Asterias fails to pay any amount due under the Services Agreement 30 days after Catapult makes a written demand for payment. In addition, a non-breaching party may terminate the Services Agreement upon the occurrence a material breach that is not remedied within 30 days. Either party may terminate the Services Agreement in the event the other party becomes subject to insolvency, receivership, liquidation, or a similar event.

Advance payments for research and development services to be performed by Catapult are deferred and recognized as research and development expense ratably as the services are performed. Advance payments related to licenses will be expensed when paid due to the experimental nature of the project. Pursuant to the Services Agreement, if there are any issued, but unsold Asterias stock, to Catapult for payment of services and the 60-day put right has not expired as of the period end being reported on, Asterias will present that amount as "temporary" equity in accordance with ASC 480-10-S99 *Distinguishing Liabilities from Equity – SEC Materials*. Once the put right expires or the shares are sold by Catapult, the temporary equity amount will be reclassified by Asterias to permanent equity without adjustment to the carrying value of the stock

In the fiscal years ended December 31, 2017, 2016 and 2015 Asterias paid $1.6 million, $1.7 million and $1.2 million, respectively, for services pursuant to the Services Agreement. Asterias paid $385,000, $815,000, and $713,000, respectively, in cash for these services and the remainder was paid with Asterias Series A Common Stock. Asterias issued 318,748, 218,520, and 96,479 shares of Asterias Series A Common Stock with fair market values of $1.2 million, $922,000, and $486,000 at the time of issuance which Asterias reclassified into permanent equity.

Royalty Agreement with Geron

In connection with our acquisition of Geron's stem cell assets, Asterias entered into a royalty agreement with Geron (the "Royalty Agreement") pursuant to which Asterias agreed to pay Geron a 4% royalty on net sales (as defined in the Royalty Agreement), by Asterias or any of its affiliates or sales agents, of any products that Asterias develops and commercializes that are covered by the patents Geron contributed to Asterias. In the case of sales of products covered by the patents Geron contributed to Asterias by a person other than Asterias or one of its affiliates or sales agents, Asterias will be required to pay Geron 50% of all royalties and cash payments received by Asterias or by its affiliate in respect of a product sale. Royalty payments will be subject to proration in the event that a product covered by a patent acquired from Geron is sold in combination with another product that is not covered by a patent acquired from Geron. The Royalty Agreement will terminate at the expiration or termination date of the last issued patent contributed by Geron under the Royalty Agreement. Asterias estimates that the latest patent expiration date will be in 2032. In 2017, 2016 and 2015 Asterias paid Geron $165,000, $134,000, and $281,000, respectively under this agreement in royalty fees.

Asterias License from WARF

Asterias has entered into a Non-Exclusive License Agreement with Wisconsin Alumni Research Foundation ("WARF") under which Asterias was granted a worldwide non-exclusive license under certain WARF patents and WARF-owned embryonic stem cell lines to develop and commercialize therapeutic, diagnostic and research products.

In consideration of the rights licensed, Asterias has agreed to pay WARF an upfront license fee, payments upon the attainment of specified clinical development milestones, royalties on sales of commercialized products, and, subject to certain exclusions, a percentage of any payments that Asterias may receive from any sublicenses that it may grant to use the licensed patents or stem cell lines.

The license agreement will terminate with respect to licensed patents upon the expiration of the last licensed patent to expire; with respect to the licensed stem cell lines, the license agreement will remain in force until terminated by either party in accordance with the termination provisions. Asterias may terminate the license agreement at any time by giving WARF prior written notice. WARF may terminate the license agreement if payments of earned royalties, once begun, cease for a specified period of time or if Asterias and any third parties collaborating or cooperating with Asterias in the development of products using the licensed patents or stem cell lines fail to spend a specified minimum amount on research and development of products relating to the licensed patents or stem cell lines for a specified period of time. WARF also has the right to terminate the license agreement if Asterias breaches the license agreement or becomes bankrupt or insolvent or if any of the licensed patents or stem cell lines are offered to creditors. The payments to WARF were a recurring $25,000 license maintenance fee for each of the years 2017, 2016, and 2015.

Asterias License from the University of California

Geron assigned to Asterias its Exclusive License Agreement with The Regents of the University of California (the "University") for patents covering a method for directing the differentiation of multipotential hES cells to glial-restricted progenitor cells that generate pure populations of oligodendrocytes for remyelination and treatment of spinal cord injury. Pursuant to this agreement, Asterias has an exclusive worldwide license under such patents, including the right to grant sublicenses, to create products for biological research, drug screening, and human therapy using the licensed patents. Under the license agreement, Asterias will be obligated to pay the University a royalty of 1% from sales of products that are covered by the licensed patent rights, and a minimum annual royalty of $5,000 starting in the year in which the first sale of a product covered by any licensed patent rights occurs, and continuing for the life of the applicable patent right under the agreement. The royalty payments due are subject to reduction, but not by more than 50%, to the extent of any payments that Asterias may be obligated to pay to a third party for the use of patents or other intellectual property licensed from the third party in order to make, have made, use, sell, or import products or otherwise exercise its rights under the Exclusive License Agreement. Asterias will be obligated to pay the University 7.5% of any proceeds, excluding debt financing and equity investments, and certain reimbursements, that its receives from sublicensees, other than Asterias' affiliates and joint ventures relating to the development, manufacture, purchase, and sale of products, processes, and services covered by the licensed patent. The Company had no expenses related to these fees in the years 2017, 2016, and 2015, respectively. The license agreement will terminate on the expiration of the last-to-expire of the university's issued licensed patents. If no further patents covered by the license agreement are issued, the license agreement would terminate in 2024. The university may terminate the agreement in the event of Asterias' breach of the agreement. Asterias can terminate the agreement upon 60 days' notice.

Telomerase Sublicense from Geron

Asterias received the Telomerase Sublicense from Geron in connection with our acquisition of Geron's stem cell assets. The Telomerase Sublicense grants Asterias an exclusive sublicense under certain patents owned by the University of Colorado's University License Equity Holdings, Inc. relating to telomerase and entitles Asterias to use the technology covered by the patents in the development of AST-VAC1 and AST-VAC2 as immunological treatments for cancer. Under the Telomerase Sublicense, Asterias paid Geron a one-time upfront license fee of $65,000, and Asterias will pay Geron an annual license maintenance fee of $10,000 due on each anniversary of the effective date of the agreement, and a 1% royalty on sales of any products that Asterias may develop and commercialize that are covered by the sublicensed patents. The Telomerase Sublicense will expire concurrently with the expiration of Geron's license. That license will terminate in November 2018 when the last of the licensed patents expires. The Telomerase Sublicense may also be terminated by Asterias by giving Geron 90 days written notice, by us or by Geron if the other party breaches its obligations under the sublicense agreement and fails to cure their breach within the prescribed time period, or by Asterias or by Geron upon the filing or institution of bankruptcy, reorganization, liquidation or receivership proceedings, or upon an assignment of a substantial portion of the assets for the benefit of creditors by the other party.

Asterias is obligated to indemnify Geron, Geron's licensor, and certain other parties for certain liabilities, including those for personal injury, product liability, or property damage relating to or arising from the manufacture, use, promotion or sale of a product, or the use by any person of a product made, created, sold or otherwise transferred by us or our sublicensees that is covered by the patents sublicensed under this agreement.

14. Clinical Trial and Option Agreement with CRUK and CIRM Grant Award

During September 2014, Asterias entered into a Clinical Trial and Option Agreement (the "CRUK Agreement") with Cancer Research UK ("CRUK") and Cancer Research Technology Limited, a wholly-owned subsidiary of CRUK, pursuant to which CRUK has agreed to fund Phase 1 clinical development of Asterias' human embryonic stem cell derived AST-VAC2 allogeneic (non-patient specific) dendritic cancer vaccine product candidate. Asterias, at its own cost, completed process development and manufacturing scale-up of the AST-VAC2 manufacturing process and transferred the resulting cGMP-compatible process to CRUK. CRUK will, at its own cost, manufacture clinical grade AST-VAC2 and will carry out the Phase 1 clinical trial of AST-VAC2 in cancer patients both resected early-stage and advanced forms of lung cancer. Asterias will have an exclusive first option to obtain a license to use the data from the clinical trial. If Asterias exercises that option, then Asterias will be obligated to make payments upon the execution of the License Agreement, upon the achievement of various milestones, and royalties on sales of products. In connection with the CRUK Agreement, Asterias sublicensed to CRUK for use in the clinical trials and product manufacturing process certain patents that have been licensed or sublicensed to us by third parties. Asterias would also be obligated to make payments to those licensors and sublicensors upon the achievement of various milestones, and then royalties on sales of products if AST-VAC2 is successfully developed and commercialized.

On October 16, 2014 Asterias signed a Notice of Grant Award ("NGA") with CIRM, effective October 1, 2014, with respect to a $14.3 million grant award for clinical development of Asterias' product, AST-OPC1. The NGA was subsequently amended effective November 26, 2014 and March 2, 2016. The NGA includes the terms under which CIRM will release grant funds to Asterias. Under the NGA as amended on March 2, 2016, CIRM will disburse the grant funds to Asterias based on Asterias' attainment of certain progress milestones.

Asterias received $5.6 million under the NGA during 2015. During the fiscal year ended December 31, 2016, Asterias received an additional $6.2 million under the NGA grant. In September 2017, we received the final $1.5 million payment under the CIRM grant which was due upon achievement of certain clinical milestones. Revenues pursuant to the NGA recognized during the fiscal years ended December 31, 2017, 2016 and 2015 were $3.7 million, $6.6 million and $3.0 million, respectively. Although the cash payments from CIRM were dependent on achieving certain milestones pursuant to the contract with CIRM, Asterias recognized grant income as related research expenses are incurred. We had no deferred revenues related to the CIRM grant as of December 31, 2017. Deferred revenues relating to the CIRM grant were $2.2 million at December 31, 2016.

15. Cross-License and Share Transfer with BioTime and Subsidiaries

On February 16, 2016, Asterias entered into a Cross-License Agreement (the "Cross-License") with BioTime and BioTime's wholly owned subsidiary ESI. Under the terms of the Cross-License, Asterias received a fully-paid, non-royalty-bearing, world-wide, non-exclusive, sub-licensable license under certain BioTime patents and related patent rights and ESI patents and related patent rights specified in the Cross-License, for all purposes in the Asterias Licensed Field, as defined in the Cross-License agreement, during the term of the license.

Under the terms of the Cross-License, BioTime and ESI received a fully-paid, non-royalty-bearing, world-wide, non-exclusive, sub-licensable license in, to, and under the certain Asterias patents and related patent rights for all purposes in the BioTime/ESI Licensed Field, as defined in the Cross-License agreement, during the term of the license.

On February 16, 2016, Asterias also entered into a Share Transfer Agreement (“Share Transfer”) with BioTime and ESI pursuant to which (a) Asterias transferred to BioTime 2,100,000 shares of common stock of OrthoCyte Corporation (“OrthoCyte) and 21,925 ordinary shares of Cell Cure Neurosciences Ltd (“Cell Cure”), each a majority-owned subsidiary of BioTime, with an aggregate carrying value at the time of the transaction of approximately $416,000 and (b) BioTime transferred to Asterias 75,771 shares of Series A common stock of Asterias with a carrying value at the time of the transaction of approximately $197,000 and warrants to purchase 3,150,000 Series A common stock of Asterias at an exercise price of $5.00 per share, with a carrying value at the time of the transaction of approximately $2.0 million, as additional consideration for the license of patents and patent rights from Asterias under the Cross License. On March 20, 2016, the warrants to purchase 3,150,000 shares of Series A common stock were retired by Asterias in addition to 75,771 shares of Series A common stock retired.

The Cross-License and Share Transfer transaction was accounted for as a transfer of assets between entities under common control and recorded at carrying value, with the resulting gain on transfer of approximately $1.8 million recorded by Asterias in equity as contributed capital to BioTime in accordance with, and pursuant to ASC 805-50, *Transactions Between Entities Under Common Control*. Accordingly, the net financial reporting impact of the Cross-License and Share Transfer of $0.4 million charged to additional paid-in capital was comprised of the retirement of the aggregate $2.2 million carrying value of the warrants and the Series A Common Stock offset by the $1.8 million transfer gain.

The transfer of assets was also a taxable transaction to Asterias generating a taxable gain of approximately $3.1 million as further discussed in Note 10.