

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

FORM 10-K/A-1

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

For the fiscal year ended December 31, 2016

OR

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

For the transition period from _____ to _____

Commission file number 1-12830

BioTime, Inc.

(Exact name of registrant as specified in its charter)

California

(State or other jurisdiction of incorporation or organization)

94-3127919

(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 MKT
Common share purchase warrants expiring October 1, 2018	NYSE MKT

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, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer (Do not check if a smaller reporting company)

Smaller reporting company

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the 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, 2015 was \$165,569,534. 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 9, 2017 was 110,853,754.

Documents Incorporated by Reference

Portions of the registrant's Proxy Statement for 2017 Annual Meeting of Shareholders are incorporated by reference in Part III

EXPLANATORY NOTE

BioTime, Inc. ("BioTime") is filing this Amendment No. 1 (the "Amendment") to its Annual Report on Form 10-K for the year ended December 31, 2016, as originally filed with the Securities and Exchange Commission (the "SEC") on March 16, 2017 (the "Original Filing") for the purpose of providing separate financial statements of Asterias Biotherapeutics, Inc. ("Asterias") in accordance with Rule 3-09 of Regulation S-X. As indicated in its Original Filing, Asterias is an equity method investee in which BioTime owns approximately 46% as of December 31, 2016. BioTime is filing this Amendment to amend Item 15 to include audited financial statements of Asterias as of December 31, 2016 and 2015 and for each of the three years ended December 31, 2016 which were included in Asterias' Annual Report on Form 10-K filed with the SEC on March 28, 2017 (the "Asterias Financial Statements").

The Asterias Financial Statements were prepared and provided to BioTime by Asterias, and were not available at the time of the Original Filing. Asterias is solely responsible for the form and content of the Asterias Financial Statements provided herewith.

This Amendment does not reflect events occurring after the date of the Original Filing or modify or update any disclosures that may have been affected by subsequent events.

Item 15. Exhibits, Financial Statement Schedules

(a-1) Financial Statements.

The following financial statements of BioTime, Inc. are filed in the Form 10-K:

Consolidated balance sheets
 Consolidated statements of operations
 Consolidated statements of comprehensive loss
 Consolidated statements of shareholders' equity
 Consolidated statements of cash flows
 Notes to Consolidated Financial Statements

(a-3) Exhibits.

Exhibit Numbers	Description
3.1	Articles of Incorporation with all amendments (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	Intellectual Property Agreement between BioTime, Inc. and Hal Sternberg (3)
10.2	Intellectual Property Agreement between BioTime, Inc. and Judith Segall (3)
10.3	2002 Stock Option Plan, as amended (6)
10.4	Employment Agreement, dated October 10, 2007, between BioTime, Inc. and Michael D. West. (7)
10.5	Commercial License and Option Agreement between BioTime and Wisconsin Alumni Research Foundation (8)
10.6	License Agreement, dated July 10, 2008, between Embryome Sciences, Inc. and Advanced Cell Technology, Inc. (9)
10.7	First Amendment of Commercial License and Option Agreement, dated March 11, 2009, between BioTime and Wisconsin Alumni Research Foundation (10)
10.8	Amended and Restated Shareholders Agreement, dated October 7, 2010, by and among ES Cell International Pte. Ltd., BioTime, Inc., Teva Pharmaceutical Industries, Limited, HBL-Hadasit Bio-Holdings, Ltd., and Cell Cure Neurosciences Ltd. (11)

10.9	Amended and Restated Research and License Agreement, dated October 7, 2010, between Hadasit Medical Research Services and Development Ltd. and Cell Cure Neurosciences Ltd. (11)
10.10	Additional Research Agreement, dated October 7, 2010, between Hadasit Medical Research Services and Development Ltd. and Cell Cure Neurosciences Ltd. (11)
10.11	OrthoCyte Corporation 2010 Stock Option Plan; Form of OrthoCyte Corporation Stock Option Agreement (11)
10.12	BioTime Asia, Limited 2010 Stock Option Plan; Form of BioTime Asia Limited Stock Option Agreement (11)
10.13	License Agreement between BioTime, Inc. and Cornell University (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (12)
10.14	LifeMap, Inc. 2011 Stock Option Plan; and Form of LifeMap, Inc. Stock Option Agreement (13)
10.15	Exclusive License Agreement, dated February 15, 2006, between Glycosan BioSystems, Inc. and the University of Utah Research Foundation, as amended (14)
10.16	Form of Employee Incentive Stock Option Agreement (15)
10.17	Form of Non-employee Director Stock Option Agreement (15)
10.18	Option Agreement, dated March 4, 2014, between BioTime and certain investors (16)
10.19	Co-Development and Option Agreement, dated May 6, 2014, between LifeMap Solutions, Inc. and the Icahn School of Medicine at Mount Sinai (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (17)
10.20	LifeMap Solutions, Inc. 2014 Stock Option Plan (17)
10.21	Form of LifeMap Solutions, Inc. Incentive Stock Option Agreement (17)
10.22	Form of LifeMap Solutions, Inc. Stock Option Agreement (17)
10.23	Employment Agreement, dated December 29, 2014, between BioTime, Inc. Aditya Mohanty (18)
10.24	First Amendment to Co-Development and Option Agreement, dated March 7, 2015, between Icahn School of Medicine at Mount Sinai and LifeMap Solutions, Inc. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (19)
10.25	2012 Equity Incentive Plan, as amended (20)
10.26	Stock Purchase Agreements, dated September 14, 2015, between BioTime, Inc. and certain investors (21)
10.27	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) (21)
10.28	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) (21)

10.29	Stock Purchase Agreements Between BioTime and certain investors (21)
10.30	Employment Agreement, dated November 16, 2015, between BioTime, Inc. and Russell Skibsted (22)
10.31	Employment Termination and Release Agreement, dated November 18, 2015, between BioTime, Inc. and Robert W. Peabody (23)
10.32	Employment Agreement, dated November 18, 2015, between LifeMap Solutions, Inc. and Robert W. Peabody (23)
10.33	Consulting Agreement, dated November 18, 2015, between BioTime, Inc. and Robert W. Peabody (23)
10.34	Amendment of Employment Agreement, dated November 24, 2015, between BioTime, Inc. and Michael D. West (24)
10.35	Amendment of Employment Agreement, dated November 24, 2015, between BioTime, Inc. and Aditya Mohanty (24)
10.36	Lease, dated December 10, 2015, between BioTime, Inc. and BSREP Marina Village Owner LLC (25)
10.37	Cross-License Agreement, dated February 16, 2016, among Asterias Biotherapeutics, Inc., BioTime, Inc., and ES Cell International Pte. Ltd. (26)
10.38	Cell Cure Neurosciences Ltd. Share Option Plan (27)
10.39	Form of Cell Cure Neurosciences Ltd. Share Option Plan Option Agreement (27)
21.1	List of Subsidiaries (27)
23.1	Consent of OUM & Co. LLP (27)
23.2	Consent of OUM & Co. LLP *
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 (27)
101.SCH	XBRL Taxonomy Extension Schema (27)
101.CAL	XBRL Taxonomy Extension Calculation Linkbase (27)
101.LAB	XBRL Taxonomy Extension Label Linkbase (27)
101.PRE	XBRL Taxonomy Extension Presentation Linkbase (27)
101.DEF	XBRL Taxonomy Extension Definition Document (27)

(1) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended June 30, 2016

- (2) Incorporated by reference to Registration Statement on Form S-1, File Number 33-48717 and Post-Effective Amendment No. 1 thereto filed with the Securities and Exchange Commission on June 22, 1992, and August 27, 1992, respectively
 - (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 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 Quarterly Report on Form 10-Q for the quarter ended June 30, 2014
 - (18) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2014
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- (19) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended March 31, 2015
- (20) 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
- (21) Incorporated by reference to BioTime's Quarterly Report on Form 10/Q for the quarter ended September 30, 2015
- (22) Incorporated by reference to BioTime's Current Report on Form 8-K, filed November 16, 2015
- (23) Incorporated by reference to BioTime's Current Report on Form 8-K, filed November 18, 2015
- (24) Incorporated by reference to BioTime's Current Report on Form 8-K, filed November 24, 2015
- (25) Incorporated by reference to BioTime's Current Report on Form 8-K, filed December 9, 2015
- (26) Incorporated by reference to BioTime's Current Report on Form 8-K, filed February 18, 2016
- (27) Previously filed with BioTime's Annual Report on Form 10-K for the year ended December 31, 2016, filed March 16, 2017

* Filed herewith

(c) Financial Statement Schedules of Subsidiaries Not Consolidated and Fifty Percent or Less Owned Persons

The following financial statements of Asterias Biotherapeutics, Inc. are incorporated by reference to the financial statements included in Asterias' Annual Report on Form 10-K for the year ended December 31, 2016, filed with the SEC on March 28, 2017, and filed herewith as Exhibit 99.1.

Balance sheets as at December 31, 2016 and 2015

Statements of operations for the years ended December 31 2016, 2015, and 2014

Statements of comprehensive loss for the years ended December 31 2016, 2015, and 2014

Statement of stockholders' equity for the years ended December 31 2016, 2015, and 2014

Statements of cash flows for the years ended December 31 2016, 2015, and 2014

Notes to Financial Statements

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this Amendment No. 1 on Form 10-K/A to be signed on its behalf by the undersigned, thereunto duly authorized on the 28th day of March 2017.

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

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statements on Form S-2 (Registration Nos. 333-128083 and 333-109442), Form S-3 (Registration Nos. 333-166862, 333-183557, 333-187710, 333-188066, 333-201824, and 333-209000), and Form S-8 (Registration Nos. 333-101651, 333-122844, 333-163396, 333-192531 and 333-205661) and related prospectuses of BioTime, Inc. of our report dated March 28, 2017, relating to the financial statements of Asterias Biotherapeutics, Inc., included in this Annual Report on Form 10-K/A of BioTime, Inc. for the year ended December 31, 2016.

/s/ OUM & CO. LLP

San Francisco, California
March 28, 2017

CERTIFICATIONS

I, Michael D. West, certify that:

1. I have reviewed this annual report on Form 10-K/A 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;

Date: March 28, 2017

/s/ Michael D. West

Michael D. West
Co-Chief Executive Officer

CERTIFICATIONS

I, Aditya Mohanty, certify that:

1. I have reviewed this annual report on Form 10-K/A 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;

Date: March 28, 2017

/s/ Aditya Mohanty

Aditya Mohanty

Co-Chief Executive Officer

CERTIFICATIONS

I, Russell Skibsted, certify that:

1. I have reviewed this annual report on Form 10-K/A 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;

Date: March 28, 2017

/s/ Russell Skibsted

Russell Skibsted
Chief Financial Officer

**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/A of BioTime, Inc. (the "Company") for the year ended December 31, 2016 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 28, 2017

/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

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders
Asterias Biotherapeutics, Inc.

We have audited the accompanying balance sheets of Asterias Biotherapeutics, Inc. as of December 31, 2016 and 2015, and the related statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2016. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Asterias Biotherapeutics, Inc. at December 31, 2016 and 2015, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2016, in conformity with accounting principles generally accepted in the United States of America.

As discussed in Note 10 to the financial statements, in 2016 the Company changed the classification of deferred taxes in the balance sheets due to the adoption of ASU 2015-17, *Balance Sheet Classification of Deferred Taxes*. This change was applied retrospectively to all periods presented.

/s/ OUM & CO. LLP

San Francisco, California
March 28, 2017

ASTERIAS BIOTHERAPEUTICS, INC.
BALANCE SHEET
(IN THOUSANDS EXCEPT PAR VALUE AMOUNTS)

	<u>December 31,</u> <u>2016</u>	<u>December 31,</u> <u>2015</u> <small>(see Note 10)</small>
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	\$ 19,800	\$ 11,183
Available-for-sale securities, at fair value	15,269	17,006
Landlord receivable	-	567
Prepaid expenses and other current assets	1,921	1,033
Total current assets	<u>36,990</u>	<u>29,789</u>
NONCURRENT ASSETS		
Intangible assets, net	18,130	20,816
Property, plant and equipment, net	5,475	5,756
Investment in affiliates	-	416
Other assets	415	457
TOTAL ASSETS	<u>\$ 61,010</u>	<u>\$ 57,234</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Amount due to BioTime, Inc.	\$ 288	\$ 530
Accounts payable	1,076	747
Accrued expenses	2,495	1,183
Capital lease liability, current	7	7
Deferred grant income	2,185	2,513
Total current liabilities	<u>6,051</u>	<u>4,980</u>
LONG-TERM LIABILITIES		
Warrant liability	8,665	-
Capital lease liability, noncurrent	20	26
Deferred tax liabilities, net	-	2,550
Deferred rent liability	266	179
Lease liability	3,980	4,400
TOTAL LIABILITIES	<u>18,982</u>	<u>12,135</u>
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; 47,567 and 38,228 shares Series A Common Stock issued and outstanding at December 31, 2016 and 2015, respectively; no Series B Common Stock issued and outstanding at December 31, 2016 and 2015	5	4
Additional paid-in capital	126,829	92,900
Accumulated other comprehensive income (loss)	(1,078)	434
Accumulated deficit	(83,728)	(48,239)
Total stockholders' equity	<u>42,028</u>	<u>45,099</u>
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	<u>\$ 61,010</u>	<u>\$ 57,234</u>

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,		
	2016	2015	2014
REVENUES:			
Grant income	\$ 6,572	\$ 3,007	\$ 1,035
Sale of cell lines	-	40	-
License revenue	125	-	-
Royalties from product sales	257	535	189
Total revenues	6,954	3,582	1,224
Cost of sales	(128)	(268)	(95)
Total gross profit	6,826	3,314	1,129
OPERATING EXPENSES:			
Research and development	(25,467)	(17,321)	(13,310)
General and administrative	(15,482)	(7,901)	(5,280)
Total operating expenses	(40,949)	(25,222)	(18,590)
Loss from operations	(34,123)	(21,908)	(17,461)
OTHER INCOME/(EXPENSES):			
Loss from change in fair value of warrant liability	(3,108)	-	-
Interest expense, net	(546)	(341)	(10)
Other expense, net	(37)	(6)	(2)
Total other expenses, net	(3,691)	(347)	(12)
LOSS BEFORE INCOME TAX BENEFIT	(37,814)	(22,255)	(17,473)
Deferred income tax benefit	2,325	7,252	7,376
NET LOSS	\$ (35,489)	\$ (15,003)	\$ (10,097)
BASIC AND DILUTED NET LOSS PER SHARE	\$ (0.83)	\$ (0.42)	\$ (0.33)
WEIGHTED AVERAGE SHARES OUTSTANDING: BASIC AND DILUTED	42,934	35,443	30,720

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

ASTERIAS BIOTHERAPEUTICS, INC.
STATEMENTS OF COMPREHENSIVE LOSS
(IN THOUSANDS)

	Years Ended December 31,		
	2016	2015	2014
NET LOSS	\$ (35,489)	\$ (15,003)	\$ (10,097)
Other comprehensive income (loss), net of tax:			
Unrealized gain/(loss) on available for sale securities, net of taxes	(1,512)	937	2,432
COMPREHENSIVE LOSS	<u>\$ (37,001)</u>	<u>\$ (14,066)</u>	<u>\$ (7,665)</u>

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

ASTERIAS BIOTHERAPEUTICS, INC.
STATEMENT OF STOCKHOLDERS' EQUITY
(IN THOUSANDS)

	Common Stock				Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Stockholders' Equity
	Series A		Series B					
	Shares	Amount	Shares	Amount				
Balance as of December 31, 2013	6,538	\$ 1	23,961	\$ 2	\$ 79,851	\$ (2,935)	\$ (23,139)	\$ 53,780
Common stock issued to officer at \$2.34 per share	—	—	200	—	468	—	—	468
Sale of BioTime shares	—	—	—	—	(10,366)	—	—	(10,366)
Stock-based compensation expense	—	—	—	—	1,580	—	—	1,580
Restricted stock granted for compensation at \$2.34 per share	—	—	200	—	234	—	—	234
Warrants issued to outside investors as part of the sale of 5,000,000 BioTime shares	—	—	—	—	3,184	—	—	3,184
Series B converted to Series A on October 3, 2014	24,361	2	(24,361)	(2)	—	—	—	—
Issuance of common stock upon exercise of stock options	3	—	—	—	8	—	—	8
Deferred tax liability adjustment on BioTime shares	—	—	—	—	(8,592)	—	—	(8,592)
Unrealized gain on available-for-sale securities, net of taxes	—	—	—	—	—	2,432	—	2,432
Net loss	—	—	—	—	—	—	(10,097)	(10,097)
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 deferred tax liability	—	—	—	—	—	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	557	—	—	—	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	<u>47,567</u>	<u>\$ 5</u>	<u>—</u>	<u>\$ —</u>	<u>\$ 126,829</u>	<u>\$ (1,078)</u>	<u>\$ (83,728)</u>	<u>\$ 42,028</u>

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

ASTERIAS BIOTHERAPEUTICS, INC.
STATEMENTS OF CASH FLOWS
(IN THOUSANDS)

	Year Ended December 31,		
	2016	2015	2014
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net loss	\$ (35,489)	\$ (15,003)	\$ (10,097)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization expense	1,176	564	530
Stock-based compensation	4,797	3,625	1,814
Amortization of intangible assets	2,686	2,686	4,789
Amortization of prepaid rent	-	85	85
Deferred income tax benefit	(2,325)	(7,252)	(7,376)
Common stock issued for services in lieu of cash	922	486	-
Loss from change in fair value of warrant liability	3,108	-	-
Distribution of Asterias warrants to shareholders other than BioTime	5,285	-	-
Changes in operating assets and liabilities:			
Grant receivable	-	118	(118)
Prepaid expenses and other current assets	(887)	(680)	(182)
Other assets	10	(95)	-
Accounts payable	329	(24)	120
Accrued expenses	1,863	584	199
Deferred rent liability	87	85	94
Deferred grant income	(328)	2,513	-
Amount due to BioTime	(242)	(85)	(1,449)
Net cash used in operating activities	<u>(19,008)</u>	<u>(12,393)</u>	<u>(11,591)</u>
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchase of property, plant and equipment, including leasehold improvements	(894)	(313)	(115)
Payments on construction in progress	-	(4,279)	(219)
Proceeds from the sale of available-for-sale investments	-	-	12,661
Reimbursement (payment) of security deposit, net	31	(1)	(307)
Net cash provided by/(used in) investing activities	<u>(863)</u>	<u>(4,593)</u>	<u>12,020</u>
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from sale of common shares under at-the-market transactions...	7,969	4,839	-
Financing costs for at-the-market sales	(328)	(157)	-
Proceeds from sale of common shares in public offering	14,014	5,500	468
Proceeds allocated to warrants classified as liabilities	6,009	-	-
Proceeds from exercise of warrants	651	11,700	-
Financing costs for sale of common stock in public offering	(1,275)	(508)	-
Financing costs allocated to warrants classified as liabilities	(550)	-	-
Proceeds from exercises of stock options	2,026	29	8
Repayment of lease liability and capital lease obligation	(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	<u>28,488</u>	<u>25,093</u>	<u>476</u>
NET INCREASE IN CASH AND CASH EQUIVALENTS	8,617	8,107	905
At beginning of year	11,183	3,076	2,171
At end of year	<u>\$ 19,800</u>	<u>\$ 11,183</u>	<u>\$ 3,076</u>
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	\$ -
Construction in progress in accounts payable and accrued expenses	\$ -	\$ -	\$ 186
Landlord receivable	\$ -	\$ (189)	\$ (378)
Lease liability	\$ -	\$ 189	\$ 378
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 biotechnology company focused on the emerging fields of cell therapy and regenerative medicine. Asterias has two core technology platforms. The first is a type of stem cell capable of becoming all of the cell types in the human body, a property called pluripotency. The second is a type of cell called “dendritic cells” used to teach cancer patients’ immune systems to attack their tumors. Asterias currently has three clinical stage programs based on these platforms: AST-OPC1 is a therapy derived from pluripotent stem cells that is currently in a Phase 1/2a clinical trial for spinal cord injuries (“SCI”); AST-VAC1 is a patient-specific cancer immunotherapy for Acute Myeloid Leukemia (“AML”); and AST-VAC 2 is a non-patient specific cancer immunotherapy for which the initiation of a Phase 1/2a clinical trial in non-small cell lung cancer is planned for 2017.

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 over-allotment 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. BioTime also allocates certain overhead expenses such as insurance, internet, and telephone expenses based on a percentage determined by management. 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 the second half of 2016 and are expected to decrease further in 2017 as Asterias continues 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).

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, 2016, Asterias had an accumulated deficit of \$83.7 million, working capital of \$30.9 million and stockholders' equity of \$42.0 million. Asterias has evaluated its projected cash flows and believes that its cash and cash equivalents of \$19.8 million and available for sale securities of \$15.3 million as of December 31, 2016, 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 31, 2018 (see Note 16). Some of the clinical trials being conducted by Asterias will continue to be funded in part with funds from the \$14.3 million grant awarded in 2014 by the California Institute for Regenerative Medicine ("CIRM") (\$1.5 million of which are still subject to meeting certain milestones as of December 31, 2016) 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 the remaining 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 – 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, Asterias will assess going concern uncertainty for its financial statements 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, 2016 and 2015, Asterias had \$13.7 million and \$10.0 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 or loss. 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 accounts for the BioTime and OncoCyte shares it holds as available-for-sale equity 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 MKT 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 or 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 or 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 on 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, 2016 and 2015, no other-than-temporary impairment loss was recognized.

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 a 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.

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 salaries, payroll taxes, consulting fees, research and laboratory fees, rent of research facilities, amortization of intangible assets, patent applications and prosecutions 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, 2016 and 2015.

As further discussed in Note 10, Asterias adopted early the provisions of Accounting Standards Update, ASU 2015-17, *Income Taxes (Topic 740): Balance Sheet Classification of Deferred Taxes*, on a retrospective basis.

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 less estimated forfeitures. 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, net of estimated forfeitures, over the requisite service period.

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 718 and 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 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	<u>\$ 8,665</u>	<u>2,813</u>

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,		
	2016	2015	2014
Net loss	\$ (35,489)	\$ (15,003)	\$ (10,097)
Weighted average common shares outstanding – basic and diluted	42,934	35,443	30,720
Net loss per share – basic and diluted	\$ (0.83)	\$ (0.42)	\$ (0.33)

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,		
	2016	2015	2014
Stock options and restricted stock units	6,266	5,178	3,347
Warrants	6,552	3,500	8,500

Reclassification– Certain prior year amounts in the statement of cash flows have been reclassified to conform to the current year presentation. There was no change or impact to total amounts reported in the prior years.

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. ASU No. 2016-01, when adopted, could have a material impact on Asterias' financial statements based on the current accounting of available-for-sale securities Asterias holds as discussed in Note 4.

In December 2016, FASB issued Accounting Standards Update, ASU, 2016-20, *Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers (ASU 2016-20)* which amends narrow aspects of accounting standard ASU 2014-09 *Revenue from Contracts with Customers (Topic 606)*. ASU-2016-20 is effective for periods beginning after December 15, 2017.

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).

Asterias has completed an initial assessment of the new revenue recognition standard under Topic 606, which will be effective for Asterias beginning on January 1, 2018, and Asterias will be working on an implementation plan to evaluate the accounting and disclosure requirements under the new standard. Based on the work performed to date, Asterias does not expect adoption of the new standard to have a material impact on the financial statements. Asterias has not finalized its transition method for adoption.

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 of awards on the statement of cash flows. The update is effective for fiscal years beginning after December 15, 2016, and interim periods within those annual periods. Asterias is currently evaluating the impact the adoption of ASU 2016-09 will have on its financial statements.

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. Although Asterias has not completed its evaluation of the impact of the adoption of ASU 2016-02, since the significant operating leases Asterias has are currently on its balance sheet (see Note 8), the adoption of ASU 2016-02 is not expected to have a material impact to Asterias financial statements.

3. Balance Sheet Components

Property, plant and equipment, net

As of December 31, 2016 and 2015, property, plant and equipment, net were comprised of the following (in thousands):

	December 31,	
	2016	2015
Computers, machinery and equipment	\$ 2,545	\$ 1,789
Furniture, fixtures and leasehold improvements	5,421	5,283
	7,966	7,072
Less - accumulated depreciation and amortization	(2,491)	(1,316)
Property, plant and equipment, net	<u>\$ 5,475</u>	<u>\$ 5,756</u>

Depreciation and amortization expense amounted to \$1.2 million, \$564,000, and \$530,000 for the years ended December 31, 2016, 2015 and 2014, respectively.

Accrued expenses

As of December 31, 2016 and 2015, accrued expenses were comprised of the following (in thousands):

	December 31,	
	2016	2015
Accrued compensation and benefits	\$ 1,770	\$ 188
Other accrued expenses	725	995
Accrued expenses	<u>\$ 2,495</u>	<u>\$ 1,183</u>

4. Investment in BioTime and OncoCyte Common Stock

Investment in BioTime Common Stock

BioTime common shares (traded on NYSE: MKT 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. As of December 31, 2016 and 2015, Asterias held 3,852,880 BioTime shares which are valued at \$13.9 million and \$15.8 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: MKT (symbol “OCX”) and available for working capital purposes. As of December 31, 2016 and 2015, the OncoCyte shares are valued at \$1.4 million and \$1.2 million, respectively, based on the OncoCyte closing price on those dates.

5. Intangible assets, net

As of December 31, 2016 and, 2015, 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, 2016 and, 2015 are shown in the following table (in thousands):

	December 31,	
	2016	2015
Intangible assets	\$ 26,860	\$ 26,860
Less - accumulated amortization	(8,730)	(6,044)
Intangible assets, net	<u>\$ 18,130</u>	<u>\$ 20,816</u>

Asterias recognized \$2.7 million, \$2.7 million, and \$4.8 million in amortization expense of intangible assets for the years ended December 31, 2016, 2015 and 2014, respectively.

Amortization of intangible assets for periods subsequent to December 31, 2016 is as follows (in thousands):

Year Ending December 31,	Amortization Expense
2017	\$ 2,686
2018	2,686
2019	2,686
2020	2,686
2021	2,686
Thereafter	4,700
Total	<u>\$ 18,130</u>

6. Common Stock and Warrants

At December 31, 2016, Asterias had outstanding 47,566,596 Series A Shares and no Series B Shares. At December 31, 2015, Asterias had outstanding 38,228,120 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 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 \$7.6 million in net proceeds from at-the-market transactions and issued 1.8 million shares of Asterias common stock.

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, pursuant to which Asterias may sell up to a maximum of \$20.0 million of its common stock from time to time through MLV under Asterias' previously filed and currently effective shelf registration statement on Form S-3 (File No. 333-200745). 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, 2016, up to approximately \$7.2 million of shares of Asterias common stock are available for issuance and sale pursuant to the terms of the ATM (see Note 16).

During 2016 and 2015, pursuant to a services agreement with Cell Therapy Catapult Services Limited, Asterias had issued 218,520 shares and 94,479 shares, respectively of Asterias Series A common stock with a fair value of \$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 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.

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, 2016, based on a valuation performed by Asterias Offering Warrants using the methodology described above, the fair value of the Asterias Offering Warrants liability was \$8.7 million, resulting in Asterias recording an unrealized loss of \$3.1 million for the year ended December 31, 2016, 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 9). 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, Asterias extended the expiration date of the Distribution 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 \$2.0 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 Distribution Warrants to September 29, 2017 (see Note 16).

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 (see Note 16).

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 to purchase common shares outstanding ending December 31, 2016 was 6,552,479.

Activity related to equity and liability classified warrants in 2016 and 2015, 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, January 1, 2015	8,500	\$ 2.34-5.00	\$ 3.44
Exercised in 2015	(5,000)	2.34	2.34
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

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 that would 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.

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, Restricted Stock and Restricted Stock Units

As of December 31, 2016, Asterias had outstanding to certain officers, employees, and directors, options to purchase a total of 6,065,938 shares of common stock at a weighted average exercise price of \$3.35 per share and 200,000 restricted stock/RSUs.

A summary of Asterias’ Plan activity and related information follows (in thousands, except per share amounts):

	Number of Options Outstanding	Weighted Average Exercise Price
Stock options		
Options outstanding at January 1, 2014	2,840	\$ 2.34
Options granted	1,590	2.50
Options exercised	(3)	2.34
Options expired/forfeited	(1,280)	2.34
Options outstanding at December 31, 2014	3,147	\$ 2.42
Options granted	2,005	3.81
Options exercised	(12)	2.34
Options forfeited/cancelled	(9)	3.22
Options outstanding at December 31, 2015	5,131	\$ 3.17
Options granted	3,175	3.53
Options exercised	(827)	2.45
Options forfeited/cancelled	(1,413)	3.68
Options outstanding at December 31, 2016	6,066	\$ 3.35
Options vested and expected to vest at December 31, 2016	6,066	\$ 3.35
Options exercisable at December 31, 2016	2,683	\$ 3.01

The intrinsic value of options exercised was \$1.9 million and \$0.1 million in 2016 and 2015, respectively. The aggregate intrinsic value of shares vested during 2016 and 2015 was \$4.0 million and \$2.0 million respectively.

	Number of Shares	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
Restricted stock and Restricted stock units			
Restricted stock/RSUs outstanding at January 1, 2016	48		
Restricted stock/RSUs awarded	515		
Restricted stock/RSUs released	(360)		
Restricted stock/RSUs forfeited	(3)		
Restricted stock/RSUs outstanding at December 31, 2016	200	0.7	\$ 677
Restricted stock/RSUs vested and expected to vest at December 31, 2016	200	0.7	\$ 677

During 2016, the Company awarded 200,000 shares of Restricted Stock and 314,918 Restricted Stock Units. The Restricted Stock vests 50% at the end of 6 months and the remaining 50% vests at end of 12 months. RSU’s vests 25% at the end of the first year and monthly thereafter over 3 years. Vested shares are net-share settled such that the Company withholds shares with value equivalent to the employees’ minimum statutory obligation for the applicable income and other employment taxes, and remits the cash to the appropriate tax authorities. The aggregate value of Restricted Stock and RSUs vesting during 2016 was \$0.4 million and \$0.9 million, respectively.

Restricted Stock awarded in 2016 and 2015 had an average grant date fair value per award of \$3.64 and \$2.34, respectively. The aggregate fair value of Restricted Stock vesting during 2016 and 2015 was \$0.4 million and \$0.5 million, respectively. The RSUs awarded in 2016 and 2015 had an average grant date fair value per award of \$3.57 and \$3.90, respectively. The aggregate fair value of RSU’s vesting during 2016 and 2015 was \$0.9 million and \$0.6 million, respectively.

As of December 31, 2016, there were 2,318,821 shares reserved for future awards. Restricted stock and RSUs are counted against the available for grant pool two to one.

Stock-Based Compensation Expense

The weighted-average estimated fair value of stock options granted during the years ended December 31, 2016, 2015 and 2014 was \$3.53, \$2.92, and \$1.50 per share respectively, using the Black-Scholes-Merton model with the following weighted-average assumptions:

	Years Ended December 31,		
	2016	2015	2014
Expected life (in years)	\$ 5.81	\$ 6.10	\$ 3.98
Risk-free interest rates	1.37%	1.74%	1.31%
Volatility	74.89%	77.78%	83.49%
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.

Stock-based compensation expense is recognized based on awards that are ultimately expected to vest, and as a result, the amount has been reduced by estimated forfeitures. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Forfeitures are estimated based on Asterias' historical experience and future expectations.

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, 2016, 2015 and 2014, 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,		
	2016	2015	2014
Research and development	\$ 2,655	\$ 1,604	\$ 478
General and administrative	2,142	2,021	1,336
Total stock-based compensation expense	<u>\$ 4,797</u>	<u>\$ 3,625</u>	<u>\$ 1,814</u>

At December 31, 2016 and 2015, Asterias had \$7.3 million and \$6.7 million, respectively, of total unrecognized compensation expense, net of estimated forfeitures, related to the Plan that will be recognized over a weighted-average period of approximately 3.4 and 2.4 years, respectively.

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 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.

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 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 \$574,000 of expense payable to Cognate pursuant to the Services Agreement for the year ended December 31, 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, 2016 and 2015, the landlord liability was \$4.0 million and \$4.4 million and the deferred rent liability was \$266,000 and \$179,000, respectively.

Beginning on January 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, 2016, 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 will pay only 50% of the real estate taxes assessed on the premises provided that Asterias is not in default in performing its obligations under the lease beyond any notice and cure periods. However, if any improvements or alterations to the premises that Asterias constructs or adds are assessed for real property tax purposes at a valuation higher than the valuation of the improvements on the premises on the date it signed the lease, 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 under ASC 840-40-55 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 under ASC 840-40-25, *Accounting for Leases, Sale-Leaseback Transactions*, due to Asterias' significant continuing involvement with the facility that Asterias considers to be other than a normal leaseback as defined by ASC 840-40-25. 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 per ASC 840-40-55. 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, 2016, 2015, and 2014 was \$0.5 million, \$1.0 million and \$0.8 million, respectively.

Future minimum annual lease payments, including the lease liability, under the Fremont Lease for the years ending after December 31, 2016 are as follows (in thousands):

Year Ending December 31,	Minimum Lease Payments
2017	\$ 1,309
2018	1,347
2019	1,387
2020	1,430
2021	1,474
Thereafter	1,130
Total	\$ 8,077

Litigation – General

Asterias 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 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 the amount of the loss 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, 2016, total potential severance obligations in connection with the termination of employment contracts approximated \$960,000 for termination without cause and \$1.6 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, 2016 and 2015.

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 the premise.

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 initial term ended on December 31, 2016 but the Shared Facilities Agreement was automatically renewed for an additional year. 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 also include costs allocated from BioTime pursuant to the Shared Facilities and Services Agreement. BioTime allocated \$265,000, \$282,000, and \$201,000 of general overhead expenses to Asterias during the years ended December 31, 2016, 2015 and 2014, respectively. At December 31, 2016 and 2015, Asterias had \$288,000 and \$530,000, respectively, payable to BioTime under the Shared Services Agreement.

10. Income Taxes

Asterias early adopted ASU 2015-17, *Income Taxes: Balance Sheet Classification of Deferred Taxes*, effective December 31, 2016, on a retrospective basis. Accordingly, Asterias adjusted the December 31, 2015, balance sheet for noncurrent deferred tax assets and current deferred tax liabilities to conform to the presentation for the current year due to the early adoption of ASU 2015-17 as follows (in thousands):

	December 31, 2015		
	As reported	Adjustment due to retrospective adoption of ASU 2015-17	As adjusted
Total assets	\$ 66,978	\$ (9,744)	\$ 57,234
Total liabilities	21,879	(9,744)	12,135
Total liabilities and stockholders' equity	66,978	(9,744)	57,234
Working capital	19,535	5,274	24,809

The adoption of this standard had no impact on the statements of operations or cash flows.

The primary components of the deferred tax assets and liabilities at December 31, 2016 and 2015 were as follows (in thousands):

	December 31,	
	2016	2015
Deferred tax assets:		
Net operating loss carryforwards	\$ 16,844	\$ 9,939
Research and development credits	2,395	1,898
Stock based compensation and other	2,597	801
Valuation allowance	(8,081)	(2,894)
Total deferred tax assets	13,755	9,744
Deferred tax liabilities:		
Patents and licenses	(7,564)	(7,020)
Securities held as available for sale	(6,191)	(5,274)
Total deferred tax liabilities	(13,755)	(12,294)
Net deferred tax liabilities	\$ -	\$ (2,550)

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,	
	2016	2015
Computed tax benefit at federal statutory rate	34%	34%
Permanent differences	(10%)	(3%)
State tax benefit, net of effect on federal income taxes	(3%)	13%
Change in valuation allowance	(16%)	(13%)
Research and development credits	1%	2%
	6%	33%

As of December 31, 2016, Asterias has net operating loss carryforwards of approximately \$40.9 million and \$33.4 million, respectively, for federal and California tax purposes, which expire between 2032 and 2036. In addition, as of December 31, 2016, Asterias has federal and California research tax credit carry forwards of \$1.2 million and \$1.2 million, respectively. The federal tax credits expire between 2032 and 2036, while the state tax credits have no expiration date.

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. A deferred income tax benefit of approximately \$7.4 million was recorded for the year ended December 31, 2014, of which approximately \$5.2 million was related to federal taxes and \$2.2 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 established a full valuation allowance for federal deferred tax assets as of December 31, 2016. As of December 31, 2015, Asterias did not have any valuation allowance on its federal deferred tax assets due to the deferred tax liabilities exceeding the deferred tax assets as of that date. Asterias' deferred tax liabilities are a source of taxable income as prescribed by ASC 740-10-30-17. For the California deferred tax assets, Asterias established a valuation allowance as of December 31, 2016 and 2015.

In June 2014, Asterias sold 5,000,000 BioTime shares that resulted in a taxable gain of approximately \$10.3 million. Asterias received the BioTime shares from BioTime as part of the consideration for the Asterias common stock and warrants issued to BioTime under an Asset Contribution Agreement among BioTime, Asterias, and Geron Corporation, in a tax-free transaction. This taxable gain was offset by available net operating losses, resulting in no income taxes due from the sale. The transaction was treated as a deemed distribution by Asterias and recorded as a charge to equity.

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 to offset the entire taxable gain resulting in no income taxes due. As the distribution was treated as a dividend in kind 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).

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 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.

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 control change, 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.

Asterias will file an income tax return in the U.S. federal jurisdiction, and may file income tax returns in various U.S. states and foreign jurisdictions.

Asterias 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. Asterias' management does not expect that the total amount of unrecognized tax benefits will materially change over the next twelve months.

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.

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
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)
Year Ended December 31, 2015				
Revenues, net	\$ 728	\$ 734	\$ 1,247	\$ 605
Operating expenses	5,265	5,541	6,183	8,233
Loss from operations before deferred tax benefits	(4,557)	(4,859)	(5,068)	(7,771)
Basic and diluted net loss per share	(0.09)	(0.10)	(0.09)	(0.13)

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 \$5.4 million based on the foreign currency exchange rate on December 31, 2016). At the option of Asterias, up to GBP £3,600,000 (approximately \$4.4 million based on the foreign currency exchange rate on December 31, 2016) 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, 2016, we have incurred costs since commencement of the Services Agreement of GBP £1,700,000 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. 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.

During 2016 and 2015, pursuant to the Services Agreement, Asterias issued 218,520 shares and 96,000 shares, respectively of Asterias Series A common stock with a fair value of \$922,000 and \$486,000, respectively Catapult to pay for services in lieu of cash.

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 such products 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.

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. 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 2016, 2015 and 2014.

Geron assigned to Asterias its Exclusive License Agreement with The Regents of the University of California 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 2016, 2015, and 2014, 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.

Asterias Sublicense from Geron

Asterias has received from Geron an exclusive sublicense under certain patents owned by the University of Colorado's University License Equity Holdings, Inc. relating to telomerase (the "Telomerase Sublicense"). The Telomerase Sublicense 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 will pay Geron an annual license maintenance fee of \$10,000 due on each anniversary of the effective date of the Telomerase Sublicense, and a 1% royalty on sales of any products that Asterias may develop and commercialize that are covered by the sublicensed patents. In 2016, 2015 and 2014 Asterias paid \$134,000, \$281,000, and \$105,000 respectively under this agreement in combined maintenance and royalty fees.

The Telomerase Sublicense will expire concurrently with the expiration of Geron's license. That license will terminate in November 2018 when the licensed patents expire.

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 1/2 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 1/2 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 \$0.9 million during 2014 and an additional \$5.7 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 with approximately \$1.5 million expected upon further clinical milestone achievements. There can be no assurance Asterias will receive this remaining amount or that the milestones will be met. Revenues pursuant to the NGA recognized during the fiscal years ended December 31, 2016, 2015 and 2014 were \$6.6 million and \$3.0 million and \$1.0 million, respectively. Although the cash payments from CIRM are dependent on achieving certain milestones pursuant to the contract with CIRM, Asterias recognizes grant income as related research expenses are incurred. Deferred revenues relating to the CIRM grant were \$2.2 million and \$2.5 million at December 31, 2016 and 2015, respectively.

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 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.

16. Subsequent Events

Extension of Warrants

On February 3, 2017, Asterias extended the expiration date of the outstanding Distribution Warrants and the Romulus Warrants to September 29, 2017. As a result of this extension, Asterias will recognize a \$2.0 million expense which will be included in general and administrative expenses for the quarter ending March 31, 2017.

Amendment to ATM Agreement

On March 28, 2017, Asterias entered into an amendment to its Sales Agreement, dated April 10, 2015, with MLV. The amendment to the Sales Agreement was entered into by Asterias, MLV and FBR Capital Markets & Co. (“FBR” and together with MLV, the “Agents”), which acquired MLV. 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 \$25 million from time to time on or after March 28, 2017, through the Agents, subject to certain limitations, including the number of shares registered and available under the Company’s previously filed and currently effective shelf registration statement on Form S-3 (File No. 333-215154) (the “Registration Statement”). From January 1 through March 21, 2017, Asterias has sold approximately 1.3 million shares of Series A common stock for gross proceeds of \$5.3 million.

Any sales of shares of the Company's Series A common stock pursuant to the Sales Agreement, as amended, will be made under the Registration Statement and the related prospectus supplement to filed pursuant to thereunder. The Agents may sell the Series A common stock under the Sales Agreement, as amended, by any method that is deemed to be an "at-the-market offering" as defined in Rule 415 promulgated under the Securities Act of 1933, as amended, including by means of ordinary brokers' transactions at market prices, in block transactions or as otherwise agreed by the Agents and Asterias. The Agents may also sell the Series A common stock in negotiated transactions, subject to Asterias' prior approval. Subject to the terms and conditions of the Sales Agreement, as amended, the Agents will use its commercially reasonable efforts consistent with its normal trading and sales practices and applicable laws, rules and regulations to sell the shares of the Series A common stock from time to time, based upon Asterias' instructions (including any price, time or size limits or other parameters or conditions Asterias may impose). Asterias will pay the Agents a commission of up to 3.0% of the gross proceeds of the sale of any Series A common stock sold through FBR as agent under the Sales Agreement, as amended. Asterias has also provided the Agents with customary indemnification rights.